

WINGS



GENE STRATTON-PORTER

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BY
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WINGS

EARNING A TITLE

MY experience with birds began as soon as I could walk, at my home, Hopewell Farm, in Wabash County, Indiana. As I recall our farm at that time, it was of unusual beauty, a perfect inland location for birds. The public highway ran north and south through the middle of the land. On the west of the road were a number of cultivated fields and one large tract of native timber. On the east of the road lay the residence, surrounded by a large tree-filled dooryard, south of which was a garden bright with flowers and shrubs. Behind the dooryard spread a very large orchard filled with apple trees and bordered with peach trees on three sides, with rare peach, plum, and pear trees on the fourth. A lane ran from the barnyard to a woods pasture where much of the heavy timber had been cut away leaving only a few large trees interspersed with berry bushes and thickets of wild rose and elder. Three streams of running

water crossed the place, one flowing through the woods and rounding the foot of a steep hill south of the residence. A smaller one flowed in a parallel direction on the north, both emptying into a larger stream coming from the north through our meadow and joining the Wabash River several miles south of us.

All of the trees and most of the bushes surrounding the house were filled with bird nests. A privet bush in one corner of the garden always had at least one nest, while the grape arbor and berry bushes sheltered many. There were little cups of hair even among the currant and gooseberry bushes. Every bird that ever homed in an orchard in the Central States was to be found in the apple trees, in a big heap of trimmings at the back of the orchard, in the hollow rails of the fence, or in the grassy corners of our orchard. I think, too, that every bird of the fields was to be found in our meadow, our clover fields, and in the fence corners, while the big trees of the woods pasture and the deep woods had their share of crows, hawks, and owls. Twenty years after we moved away, a pair of golden eagles nested in the woods pasture, and were shot because they were carrying off small pigs and lambs. The female of this pair is my only mounted bird.

From my earliest recollection I was the

friend and devoted champion of every bird that nested in the garden, on the fences, on the ground, in the bushes, in the dooryard, or in the orchard trees. From breakfast until dinner and from dinner until supper, almost my entire day was spent in making the rounds of these nests, watching the birds while they built, brooded, or fed their young, championing their cause against other children, cats, snakes, red squirrels, or larger animals such as skunks and foxes. The latter were so numerous that we held organized fox-chases for their extermination.

I do not recall one instance during my childhood when I ever intruded myself into the affairs of any bird in such a manner as to cause it to desert its nest location. I always approached by slow degrees, remained motionless a long time, and did the birds no harm whatever; so they very soon accepted me as a part of their daily life.

I can not recall how many robin nests I located in a season, but there were two locations in which the robins built where access to them was especially convenient. One was a catalpa tree in the northwest corner of our dooryard, to the branches of which I could easily step from the front picket fence. In my morning rounds I always climbed to visit this robin, sitting on a branch talking to the

brooding mother bird, almost always carrying her a worm or a berry in my apron pocket as a friendly offering. The other location was the early harvest apple tree of our orchard. This tree was especially designed by nature for the convenience of children in climbing. In the first place the tree grew at an angle, and in the second it had a knot as large as a good-sized butter bowl on the top side which was in the proper position to make a first step in the ascent of the tree. We used to start a few rods away on the run, take this first step, which brought us in reach of the nearest branch, and from there we went up the tree almost as swiftly as we ran along the path. I can not recall one spring of my childhood in which the robins did not have at least one nest in this tree.

Coming from it early one summer morning I heard the crack of my father's rifle in the dooryard, then I saw a big bird whirling to earth in the milk yard, which adjoined the garden on one side, the orchard on the other. I saw my father start toward the bird, so as fast as possible I sped after him, my bare feet making no sound on the hard, worn path. A large chicken hawk was sitting back on his tail, one wing stiffly extended, the tip hanging broken and bleeding, while in the bird's eyes there was a look of commingled pain, fear,

and regal defiance that drove me out of my senses. My father grasped his rifle by the barrel. As the butt came whirling around, I sprang before him and sheltered the hawk with my body, the gun whizzing past my head so close that the rush of air fanned my face. My father dragged me away.

"Are you mad?" he cried. "I barely missed braining you!"

"I'd rather you did hit me," I answered, "than to have you strike a bird when its eyes are like that! Oh, Father, please don't kill him! He never can fly again. Give him to me! Do please give him to me!"

"Keep back!" cried my father. "He will tear your face!"

Father was an ordained minister, better versed in Biblical history than any other man I ever have known intimately. To him, "hawk" meant "Ayit." This old Hebrew word, literally translated, means "to tear and scratch the face." That is exactly what a hawk meant to my father; the word and bird were synonymous. To me, it meant something very different, because I had watched this pair of kingly birds carry heavy sticks and limbs, with which they had built a nest in a big oak tree overhanging a bank of the brook that ran through our meadow. The structure was bigger than a bushel basket, but

no one else of our family knew about it, because it was well screened by the leaves of the tree. It was part of my self-imposed daily task to gather up from the bank skeletons of any wild bird, rabbit, or domestic fowl, which the hawks had dropped there, and consign them to the current so that the telltale evidence of their location was quickly carried down stream. I envied these birds their power to soar in the face of the wind, to ride with the stiff gale of a beating storm, or to hang motionless as if frozen in air, according to their will, as I envied nothing else on earth. I had haunted the region of this nest so long that I knew it contained a mother bird and a pair of young big enough to look down at me over the edge of the nest, while I was quite sure that the birds were as well acquainted with me as I was with them.

So, for the first time in my life, I contradicted my father.

"He won't!" I cried. "This bird knows me. He knows I would not hurt him. Oh, do please give him to me!"

To prove my assertion, I twisted from my father's grasp and laid my hands on the bird. The hawk huddled against me for protection. In a choice between a towering man who threatened with a rifle and the familiar figure of a child who offered protection, is it any

wonder that the bird preferred the child? My father gazed at us in amazement.

"God knows I do not understand you," he said in all reverence. "Keep the bird, if you think you can!"

After my father had gone, the hawk began to revive from the shock. He was not so friendly as I had hoped he would be. In fact, he showed decided signs of wanting to scratch and bite. I did not know how to begin caring for him. My first thought was that he should be in a shady place, where he could have something to perch upon. I hunted a long stick and by patient manœuvring drove him to the woodhouse, where he climbed to the highest part of the corded wood. There he sat in sullen suffering for the remainder of the day. The next morning I went to him very early. I thought that after a day and a night with a broken wing and without food or drink he would surely allow me to care for him. I cautiously approached him with a basin of water. He drew back as far as he could crowd into a corner. I had always heard that wounded soldiers were frantic for water, so I patiently held the basin before the bird, dabbling and splashing to show him that it contained water. Suddenly, he thrust in his beak and drank like a famished creature. Then I offered him some scraped meat, which

he finally took from the end of a stick. The flies began to cluster over the broken wing, and I knew that that must be stopped ; so with one clip of the sheep shears I cut through the skin and muscle that held the dangling tip. The bird uttered a shrill scream, but he did not attack me. Then I poured cold water over the hurt wing, which was kept stiffly extended, until it was washed clean. From the time I used the cold water, the bird ceased even to threaten me. He seemed to realize that his pain was relieved. Then I went into the house to ask my mother if there was not something in her medicine chest that would help heal the wound and keep away the flies. She thought that there was, and as she measured out a white powder for me, she smiled and said : "What a little bird woman you are!"

In two weeks the hawk was as well as he ever could be. By that time he would take food from my fingers and allow me to do anything I chose for him. Inside of a month he followed me through the dooryard, woodyard, and garden much like a dog, although he was a very awkward walker, probably having had less use for his feet in walking than in carrying and holding prey. There were times when birds of his kind, often his mate without doubt, swept low above us. Then he would beat his wings and try frantically to fly.

Sometimes he followed them with his despairing eyes as they sailed from sight, and sent after them a scream that never failed to set my heart aching. At such times I could scarcely forgive my father for having deprived such a royal bird of his high estate. Although he never said so, I believe from after events that my father had the same feeling.

By this time I had become known in the family as the unfailing friend of the birds. Every unfortunate bird caught in a reaper, wounded by having been stepped on by stock, or that had escaped from the attack of a cat, a red squirrel, or snake, was brought to me for treatment. No one told me how to care for them. I was so intimate with each different kind that when a member of any bird family was brought to me I tried to do for it what seemed to be the right thing for a bird of its species. I think that in doctoring them I copied very closely the methods of my mother in treating our hurts. My father gave the birds in his jurisdiction to me, but God gives them to everyone, and He expects the same loving care of His gift to all the word that my father expected of me.



A GIFT OF THE BIRDS

ONE morning in early spring my father called me to him to ask whether I should like to have as a gift the most beautiful thing ever made by man. Of course I eagerly assured him that I should like it very much indeed. Then he told me that he had something for me even finer and more precious than anything man ever had made or ever could make: a gift straight from the hands of the Creator. He then proceeded formally to present me with the personal and indisputable ownership of each bird of every description that made its home on his land. Undoubtedly the completeness of this gift was influenced by his experience with the hawk. Before that time if he had been making such a gift I think undoubtedly he would have reserved the right to exterminate the hawks that preyed on the fields and poultry, the owls that infested the barns and chicken houses, and very probably, too, the woodpeckers, which seemed to take even more of the cherries than did the robbers, orioles, or tanagers. That he made the gift complete, with no reservations, proved

that he had learned to regard my regard for the laws of nature, which, even when very young, I seemed dimly to realize and stoutly to maintain; for the worst hawk or owl was quite as dear to me and fully as interesting as the most exquisitely colored and ecstatic singer. He must have realized that the gift would not be perfect to me if there were exemptions, so he gave me for my very own not only the birds of free, wild flight with flaming color and thrilling song, with nests of wonder, jewels of eggs, and queer little babies, but also the high-flying, wide-winged denizens of the big woods, which homed in hollow trees and on large branches, far removed from any personal contact I might ever hope to have with them.

Such is the natural greed of human nature that even while he was talking to me I was making a flashing mental inventory of *my property*, for now I owned the hummingbirds, dressed in green satin with ruby jewels on their throats; the plucky little brown wren that sang by the hour to his mate from the top of the pump, even in a hard rain; the green warbler, nestling in a magnificent specimen of wild sweetbriar beside the back porch; and the song sparrow in the ground cedar beside the fence. The bluebirds, with their breasts of earth's brown and their back of

Heaven's deepest blue; the robin, the rain song of which my father loved more than the notes of any other bird, belonged to me. The flaming cardinal and his Quaker mate, keeping house on a flat limb within ten feet of our front door, were mine; and every bird of the black silk throng that lived in the top branches of four big evergreens in front of our home was mine. The oriole, spilling notes of molten sweetness as it shot like a ray of detached sunshine to its nest in the chestnut tree across the road, was mine; while down beside the north creek, on a top branch of a willow sheltering an immense bed of blue calamus, nested a blood-red tanager, with black velvet wings. Every person visiting our family was taken to see him. With what pride I contemplated my next personally conducted trip to that tree to show the bird of blood-red! Now I owned the pewees in the marvellous little nest under the pig-pen roof, the song sparrow and the indigo finches of the privet bush at the foot of the garden, the swifts of our living-room chimney, the swallows on the barn rafters, and the martins under the eaves. When it came to the orchard with its fruit trees and its shrub-filled snake fence corner of bloom and berries, I could not even begin to enumerate the vireos and bluebirds, the catbirds, robins, jays, and thrushes. Mine, too, was the friendly, deli-

cately colored cuckoo, slipping through the fence corners and bushes of the woods pasture, with his never-failing prediction of rain. I remember that in the first moment of tumultuous joy, one thought was to hope that storm would come soon so that I might remark in careless, proprietary tones: "Hear my cuckoo calling for rain!"

As always ownership brought its care. At once an unusual sense of watchfulness developed. No landholder was ever more eager to add to his acres than I was to increase my flock of birds. My first act was to beg my mother for an old teaspoon that I might have to keep. A green warbler in the gooseberry bushes, when stepping into her nest, had pierced the shell of an egg with the sharp nail of one of her toes. If the broken egg began to leak, it would stick to and soil the others and the nest. I was afraid to put my fingers into the small hair-lined cup, so I secured the spoon for this purpose and afterward always carried it in my apron pocket.

Life became one round of battles with cats, snakes, and red squirrels, while crows and jays were not to be trusted near the nests and the young of other birds. It was a long, tedious task to make friends with the builders of each of the chosen nests, for I was forced to approach very slowly and with extreme

caution, imitating the call note of the bird the best I could; and when I had gone so near a nest that the brooding mother began to plaster her feathers flat to her body, to draw up her wings, the light of fear began to shine in her beady eyes, and she started to rise to her feet, it was time for me to pause until she regained her confidence and again settled to brooding. Almost always at this point a few more steps could be taken. I usually contented myself with leaving a little of the food that the bird being approached liked best to eat. On going back the following day, it would be possible to advance with confidence as far as I had gone the day before; from there on I would be forced again to work my way slowly and cautiously toward the nest. In this manner gradually the confidence of the mothers could be won so completely that it was permissible to touch them while they brooded. Some of the friendliest would look at me steadily for a long time and then, with a dart so quick that I had to watch myself lest I shrink back and frighten them, they would snatch the worm or berry held before them.

At that time I sincerely thought that it was my work to help those birds feed their young. Half of my breakfast slipped into my apron pockets, while I worked like the proverbial beaver searching the bushes for bugs, hunting

worms on the cabbages in the garden, digging them from the earth, and gathering berries and soft fruits. I carried with me grain from the bins in the barns, pounded fine with the hammer and soaked until it was soft for the young of the grain and seed eaters. Few mothers were so careful about the food they fed their children. I gave those nestlings only one bite at a time, and never a morsel of anything until I had watched what it was that the old birds were giving them. Before the nesting season was over they allowed me to take the most wonderful liberties with them. Warblers, phoebes, sparrows, and finches swarmed all over me, perching indiscriminately on my head, shoulders, and hands; while I stood beside their nests, feeding their young.

When it was decided that I had reached a suitable age to attend a city school, I stoutly rebelled, capitulating only when Father said the most precious of my birds might go with me. These, of course, were unfortunates that had fallen from their nests in high trees, where I could not replace them, those orphaned by an accident or some prowling creature, while sometimes a nest of young birds was brought me by a neighbor who thought he was doing me a kindness; so I left the country in company with nine birds, none smaller than a grosbeak, that had been raised

by hand. I had to arrange my school day so that there was a morning hour in which to clean the cages, change sand, scrape perches, scour bath-tubs, and cook food.

My especial favorite among my pets was a brown thrasher named Peter, because he had constantly called: "Pe-ter, Pe-ter" in the distressful days when he was missing his mother and growing accustomed to my longer intervals between feedings. One of my brothers had found him helpless and dying beside a country road and had picked him up and put him in his pocket for me. When he was given into my care, he was half-starved. After a few minutes he opened his bill for food, and in a short time spent in getting acquainted we became the greatest friends. He grew to be a strong, fine male bird, and in the spring of his second year developed a remarkably sweet voice, with which he imitated the song of every bird that could be heard around our house. He also made excursions into improvisations, which I could not recognize as familiar bird notes. One warm night of summer my father suggested that Peter would be more comfortable if left on the veranda. That was a mistake. Either a screech owl or a rat attacked him in the night and broke the tip of one wing. In the morning Peter hopped from his open door and showed me his wing.

We did all we could to comfort each other. I doctored him as in childhood I had doctored the hawk. I never shall forget the fortitude with which he bore the amputation, not struggling nor making the slightest effort to get away from me, although he cried pitifully. The wing soon healed, but Peter had lost his equilibrium. He never again could fly. Always before he had had the freedom of the premises. Now he was forced to ride on my shoulder when I went out into the yard, or to hop after me. There was one particular apple tree of our dooryard in which there was a perch where I could learn a lesson much more easily than in school. While I studied, Peter hopped from branch to branch through the tree. One day under pressure of an especially difficult Latin translation I forgot to take Peter with me to the apple tree. A maid in the house saw that he was fretting to be with me, so she put him outside the door. I heard his call, realized he was coming, and climbed down as speedily as possible, but before I could reach him a prowling cat darted from under a shed and caught him. Powerless to give him any aid, I listened to his last pitiful calls. With one exception he was the most interesting bird I ever raised by hand.

BECOMING AN ILLUSTRATOR

WHEN I began writing on natural history subjects, immediately the question of illustration arose. The editors who had accepted my work began to send me drawings of mounted birds, articulated with wire, stuffed with excelsior, and posed by men. It requires no great stretch of the imagination to understand how those pictures repelled me. I was horrified. Editors insisted upon illustration; I refused to allow the pictures they could provide to be incorporated in my text; so we were at a standstill.

The Major, our family parrot, solved my problem. He was a gaudy creature, having a head and shoulders of the loveliest dark bronzy green. The extreme top of his head was pale blue and light yellow, his breast delicate light green, while his extended wings had feathers of blood-red, deep blue, yellow, and green. He was a fluent talker and a great musician, having been carefully trained to whistle a number of tunes that had been taught him with a flute. He was a fine addition to my bird family. He was an especial favorite

with my husband, beside whose place at the dining table the bird frequently perched on the back of a low chair turned toward the table. In solemn and dignified silence the Major daintily ate food from a plate set before him. There were times when he grew tired of crackers and coffee, and saw something else on the table that he preferred. Then he would try to make us understand what he wanted. Once, after completely losing patience with our stupidity, he climbed from his chair to the table and with flattened feathers and in tremulous haste lest he be rebuked for this breach of discipline before he reached the object of his quest, he made his way among the dishes and snatched up a small green onion. Hurrying back to his chair he greedily ate three fourths of the hot vegetable. Several months later he displayed an unusual desire for something and we could not imagine what he wanted. Finally I suggested that it might be an oyster. He caught one from a fork and went hurrying back and forth across his chair, his wings half-lifted, fussing as he was accustomed to over something he had secured which he felt might be taken from him. He looked so comical that all of us laughed.

"Behold the antipodes!" I exclaimed. "Africa and Baltimore Bay! How I wish I had a camera!"

That was shortly before Christmas more than twenty years ago. A look not intended for me flashed across the table between my husband and daughter, but I saw it. Christmas brought me a small hand camera. Of course among the first pictures I attempted was one of the Major. That was a most amusing picture, sadly undertimed and overdeveloped; but before the weak streaky print left its first bath I was shouting through the Cabin like an insane creature, for although the picture contained almost every defect of a beginner's work I could see clearly that it was a perfectly natural, correct reproduction of a living bird. I had found my medium! I could illustrate what I wrote myself! I knew that with patient work the camera could soon be mastered in detail. How to make friends with the birds I knew better than any other one thing on earth.

Immediately I ordered a supply of chemicals from one of the leading drug houses of the country, laid in a heavy stock of print paper, and began work in the most intense earnestness. By spring I could make a technically perfect reproduction of the Major or any flower in the conservatory, while I even succeeded in photographing the fish in the aquarium, and, through the window glass, I made several really remarkable pictures of

birds perching or feeding on the sills outside.

That spring, with the first dove of March, I went afield. I spent over a thousand dollars in equipment. All of the money accumulated from nature articles and a few stories went to pay for four cameras, each adapted to a different branch of outdoor work, also a small wagonload of field paraphernalia. I transformed the downstairs bathroom into a dark-room and used the kitchen sink for plate and print washing. These arrangements were extremely inconvenient and uncomfortable, as shutting out all light excluded air in summer and heat in winter; but I soon made prints which brought a prominent man of the Eastman Kodak Company to investigate my methods. He frankly admitted that their experts at the factory were not making as good prints on their paper as some I had sent them. I owned a Kodak, but as a rule all of my best negatives were on plates exposed in cameras. I did not subject the gentleman to the shock of showing him that my dark-room was the family bath, my washing tanks the turkey and meat platters in the kitchen sink. I first mastered the mechanism of my equipment, studied good works on photography, and experimented with compounding chemicals and developing and fixing plates, and then the difficult processes of print making. At this time

I was doing all of the work in the thirteen-room Cabin, except the washing, and was making most of the clothing worn by my daughter; so I was what might have been considered a busy person.

My first feeling on going afield was one of amazement at what my early days among the birds had taught me. Then I was merely amusing myself, following inborn tendencies. Now I learned with every approach to the home of a bird that I was using knowledge acquired in childhood. I knew what location each bird would choose for her nest, how she would build it, brood, and care for her young. When I wanted the picture of any particular bird I knew exactly where to search for its nest, so no time was wasted. When I found a nest, all that was necessary was to set up a camera before it, focus it sharply, cover the camera to the lens with a green cloth or a few twigs, then repeat the methods of childhood. The birds had not changed in the slightest; nor had I. By using tact, patience, and plain common sense, and drawing on former experiences, in three days or less I was on a working basis with any nest of birds I ever attempted to cultivate, so that I could secure poses of the old birds performing every action of their lives anywhere in the locality of their nests.

I have reproduced birds in fear, anger, greed, pride, surprise, in full tide of song, while dressing their plumage, taking a sun bath, courting, brooding, and carrying food to their young. My procedure was merely to turn child's play into woman's work. My methods must be followed by any one who desires to accustom wild creatures to a state of fellowship with humanity. In order to do this it is necessary to move slowly, to live among the birds until one thoroughly understands their characteristics and habits, to remain near their locations until they have become so accustomed to one as a part of their daily life that they will be perfectly natural in one's presence.

Each student of bird life will rate the intelligence of the birds according to his ability to make friends with feathered creatures, to insinuate himself into their home life and to learn their secrets for himself. People who have not had much contact with them are the ones who insist that birds act solely upon instinct and are very wild. I have been upon terms of close intimacy with the home life of birds ever since I began to walk, and heretofore I have hesitated to put into print many of the experiences I have had with them, simply because the public is not yet educated to the point where it will credit my statements.

If I were compelled to pass an examination as to the number of bones in the bodies of my bird friends I should be in sad perplexity. I never have had the slightest desire or necessity to know so I do not intend to learn. If it became necessary for me to shoot one hundred and fifty rose-breasted grosbeaks in order to determine the number of potato bugs or of some certain "very tough worm" in their "little insides" then I should remain in ignorance as to the exact number they consume. On any point of pertaining to the life, habits, and characteristics of the birds I can stand securely beside the doctors of ornithology, for few of them have had the incalculable advantage of beginning life with a gift of the birds, where birds homed in flocks.



AN HEROIC MOTHER

PROBABLY from over two centuries of brooding near houses robins have become tamer and more trustful of humanity than any other bird. Possibly there should be an exception in the case of the wren, but I am not sure; there are always three pairs of robins to one of wrens with us. They build where the logs cross at corners, under porch ceilings, and among the vines climbing on the verandas. Once a robin built her nest on a windowsill directly against the sash of a summer residence belonging to my daughter. The nest was in a corner, its mud foundations so plastered to the sash that it was impossible to raise the window from the bottom until the young birds had flown, so the ventilation of the room was managed by the upper sash for the length of time the bird used the lower one, but as it was cool spring weather this worked no hardship for any one.

One of the most peculiar nesting locations I have encountered afield was on the running gear of a hay rake that had been left standing where the farmer had finished using it. The

only protection that had been afforded it from the weather was the unscrewed seat turned upside down. On the crosspiece of the frame the bird had located her nest, so centred under the shelter of the overturned seat that it was perfectly protected from sun and rain.

A man in Richmond, Indiana, once sent me a photograph of a brooding robin. He wrote that the bird had been carried into the Union Depot of that city on the running gear of a freight car, having ridden on her nest, which the train crew said had been built in freight yards in New York City. The bird was the pet of the men about the yards, and much food from the dinner pails of the workmen was left near the nest for her convenience. The picture was certainly that of a live, brooding robin on the gear of a freight car, while the story seemed to be supported by ample and reliable proof, although it was in no way a personal experience of mine.

Heroic as the Richmond robin may have been, I have one robin experience which proves the bird of even greater devotion to her nest and young than that previously related. This robin arrived early and built in an apple tree outside the music-room window of the Cabin, south. The tree had been struggling with a bad case of scale for several years and had succumbed the past winter. The bird

built in all confidence nearly fifteen feet from the ground at the branching of two large limbs, but not one leaf opened to shelter her from alternate driving spring rains and hot sunshine, as she surely expected. One day she baked in the sun; the following, she chilled in a flurry of snow. How she breasted one flood rain always has been a marvel to me. The tree stood on sloping ground outside a French window. Taking into account two feet of foundation and the slope, the nest was almost level with the face of a person standing inside the window. The rainfall began on Monday morning quite early. From that time until ten o'clock on Thursday there was not an hour of daylight during which there was not rain heavy enough to keep the bird on her nest to shelter it and her eggs. Much of the time there was a deluge that forced her to stick her beak straight up and gasp for breath. During daylight some member of the household was almost constantly on watch. Never once did the bird leave her nest or the male bird bring her food or relieve her long siege of brooding. It rained and it rained, until I thought that the mud plastering of the nest foundations would dissolve so that it would wash away from under her, but she had built an unusually large nest with much grass and straw covering the outside of the body so

that it endured. I thought that she would become so wet that the water would run down her body through her feathers and chill the eggs until they would be spoiled. In the heaviest of the downpour I truly thought that the bird would drown on her nest or die from hunger. We seriously discussed trying to wire an old umbrella over her or fixing a box above the nest, but any shelter we could arrange before her eggs quickened to bind her to them would drive her from them so long that they would be chilled. So we watched, marvelled, but did nothing. At ten o'clock Thursday the rain ceased, the clouds scattered, the sun shone. From the length of time the robin had remained in the same position during all of those hours of cold drenching and hunger, she staggered when she finally arose in her nest, uttered the robin tribal call, and attempted flight. I was watching, so I saw her miss the branch of a near-by plum tree and fall among the bushes below. There she gained a footing, rested awhile, and then flew to the branch she had first started toward. After another rest she wavered to earth and ate angle-worms until my next fear for her was that she would burst. While she was feeding her mate flew down to her and they talked over the situation. I certainly should have been interested in knowing exactly what she said

to him. He flew to the edge of the nest and carefully inspected it and the eggs, but even then he did not enter it to brood awhile for her. The mother bird soon went back to her nest. She left it more frequently than usual the remainder of that day, but the following day she seemed to have recovered from her rough experience. Three eggs of that nest hatched, so that only one bird was lost and I have no proof that it failed to develop on account of the storm. That mother robin stands monumental to me as the most heroic of the birds of my personal experience. I am convinced that she brooded under the conditions described without having once left her nest from the time she entered it for night, about four o'clock Sunday afternoon, until ten o'clock Thursday morning—ninety hours. This experience clearly proves that human mothers are not the only ones who make sacrifices for their young.



SOME UNUSUAL EXPERIENCES

PERHAPS my most unique experience with a bird occurred rather late one fall. On the way to the river one morning I noticed a bird acting peculiarly on a fine specimen of pokeberry. There had been a frost the night before. A hot autumn sun was shining on the frozen fruit. On going closer to see what was happening I found a cedar waxwing, a bird native to my location but for all that extremely rare; one seen less frequently than almost any other bird of my acquaintance. The waxwing was feasting continuously on the frozen berries, and almost as continuously raining them down in the form of scarcely digested excrement. He was in such a state of intoxication that he did not always secure the berry at which he aimed and the plumage of his face and throat was badly stained with the juice. He was so unsteady on his feet that he frequently lost his balance, and plunging headfirst, fell to the underside of the little branches to which he clung with his feet; but hanging head down, and even while he was struggling to gain an upright position, he still continued eating every berry he could reach.

Approaching as close as I thought I dared I exposed two or three plates, while my assistant hurried back to my base of supplies for more plates. I first began so far away that the picture included the whole bush, which was shaped like a small tree, having two or three trunks, then advanced gradually until my last plate was gone. When no longer able to take pictures I tried the experiment of seeing how close I could approach and found to my surprise that the bird was unable to fly. I could pick him up in my hands. He did not exhibit the least sign of fear, so I put him back on the bush and left him in what could be considered nothing less than a state of intoxication, which I could have reproduced even more intimately than in the pictures I had secured if I had known that he was past flight before using my last plate.

A pitiful and peculiar bird experience occurred in my presence on a lake in Michigan where I was rowing a boat while my brother-in-law, with an artificial minnow, was making a series of particularly long and expert casts for bass. As straight as if it had been shot from a gun a swallow darted in front of the flying bait, which struck it squarely and there was nothing to do but to reel in and attempt its release. From the impact of the bait at nearly a hundred feet, being dragged through

the water for the length of the cast, and the pain of having most of the hooks deeply imbedded in its body, the bird was dead before it reached the boat I hope. It was so terribly abused and wounded that I made sure that it was beyond suffering before attempting to remove the hooks. A man might try for an average lifetime to strike a bird on wing at that distance with an artificial bait and not succeed in hitting it. It is scarcely necessary to say that neither of us would have had this accident occur for any consideration if we could have prevented it, as swallows are particularly inoffensive and peculiarly graceful and attractive birds in flight, while their benefit of winnowing the air of countless gnats, mosquitoes, and almost invisible winged pests is beyond calculation.

One of the greatest tragedies I have known of afield was revealed by the body of a Baltimore oriole hanging from a loop of cotton cord in a cottonwood, not far from a partially completed nest that evidently had been abandoned on account of the accident. In carrying material one of the pair had dropped a piece of cotton cord mixed with heavy sewing cotton. This had lodged on the stiff point of a dead twig, then had been worked back by the wind until it caught on a tiny projection of the twig made by a falling leaf. The male

oriole in working to free this material in order to use it as a lashing to fasten his nest had slipped his head through a loop in the string, so fashioned that when he had pulled it to slip it off the twig it became a veritable noose, which grew tighter with his struggles until it had choked him to death.

At one other time I found a bird caught in nest material. This was a robin in the orchard of our farm. Driving down the lane to the highway one evening at dusk, I noticed something unusual dangling from the branch of an apple tree, and heard pitiful robin calls of distress. I responded immediately and found a young bird so fully feathered that its condition seemed to indicate that it should have been several days from the nest, which gave no signs of having been occupied more recently. Being unable to reach the nest by means of the branch, which was too light to bear my weight, I went to the house to bring a ladder. As I approached the tree on my return, I found an old robin clinging to the side of the nest putting food into the mouth of the young one. When I reached the nest I discovered that this bird had a long, stout horsehair tightly looped around one of its legs just above the knee joint, both ends being firmly plastered in the mud of the nest foundation. It had hung by this hair for so long that the skin was cut to the muscle.

The wound was so old that it had ceased to bleed, while the flesh had drawn back and was partially healed all around the cut, exposing the muscle, which was slowly being cut through by the struggles of the bird. I could draw no other conclusion than that this robin had hung there since it was old enough to leave the nest. During all this time the old ones must have fed it, as it was in fairly good flesh and its crop was well distended with food at the time I found it. All that was necessary in that instance was to break the hair and release the bird. I put it back in the nest, where it remained, as it seemed unable to stand on its hurt foot; but I hoped that after having been in an upright position for a time it would regain its equilibrium and establish enough circulation to enable it again to use its foot.

At another time I saw a robin in our doorway that had so nearly been the prey of a cat, red squirrel, or an owl that he had been forced to exercise a bird's prerogative and let his tail go to save his body. Farmers and people experienced in handling poultry know that a rooster or turkey, if grasped by the tail when pursued, can release the tail feathers to escape. I have noticed several instances and had my attention called to additional cases proving wild birds have the same power. This robin

was full-grown, a bird of several seasons. I knew this by the ruddy color of his breast and the dark feathering of his back; but his tail, which was growing out again, was not more than three fourths of an inch in length and it could be seen that he missed it, for he attempted only short flights in which he seemed to experience constant difficulty, plunging forward, head down.

A very peculiar thing, which I have seen but once afield, occurred in a piece of swampy, low ground, filled with sturdy scrub oak, button bush, and low shrubs, where the presence of many birds proved it especially good nesting territory. Here one morning, on a dead limb in plain sight so that I could not possibly mistake my identification, sat a young blackbird squalling lustily for food. There were many blackbirds flying over him and feeding young of their kind in the bushes all around him, but not one of them gave this half-famished youngster a morsel. He evidently had left the nest only that morning, and I thought prematurely at that, for he had much difficulty in maintaining his balance on the limb. This may have been caused by his reaching toward every blackbird that passed him a widely yawning mouth, while he flapped his wings to attract their attention. This went on for so long that I decided his mother must

have met her fate at the hands of a farmer, the crack of whose gun could be heard occasionally while he was planting corn in an adjoining field. Finally the young blackbird held his position with difficulty and seemed to be completely discouraged. A hen robin that had been carrying food to her young in a cottonwood in a line of flight directly over the blackbird evidently became as much exercised about the plight of the youngster as I was, for the next time she came with food she flew to the limb beside the blackbird and gave him a very generous feeding, which he seemed greatly pleased to take. This is the only incident of my life in which I have seen a bird of one species feed the young of another with the exception of small birds feeding cowbirds they had hatched in their own nest. The robin knew that all of her brood were intact in their nest in the cottonwood; she could only have deviated from her course and fed the young blackbird because he was a hungry youngster vociferously begging for food.

Among my most peculiar experiences afield is the history of a picture I made in a lake only a short distance from Silver Lake, Indiana. The shores of this lake, I was told by natives, were badly infested with a snake I have not yet been able to identify, which they called "red-bellies," and persistently asserted their

bite meant instant death; so I was constantly warned by my guide to watch out for snakes and to be very careful. With my paraphernalia in a boat, the guide rowing around the lake shore, wherever I found a subject on which I wanted to work and could not manage efficiently from the boat, I climbed out in the water, after testing its depth with an oar, and set up my camera in the muck. This was particularly messy business, fraught with dangers of going under in a fretwork of muskrat burrows or quicksand, but I was collecting illustrations for a portion of a book devoted to swamp subjects and the only place to secure my illustrations was swampy lake shore or in land swamp; so there was nothing to do but forget the discomforts and absorb myself beyond any other thought in the work of securing my pictures. When I had set up my camera, and focused it on the subject, it was my custom to take an exposure bulb with several yards of hose attached in my hand or let it float on the water, while I went forward and put the bed of flowers or whatever composed my picture into the best shape possible by removing out-of-focus limbs, flowers, or leaves from the foreground, straightening out the whole subject into the most artistic composition possible to me. One particular stretch of lake shore was thickly covered with

pickerel weed at the height of bloom, with its background of higher bushes and arrow-head lilies, while a rippling current in the water before it made a particularly exquisite picture. I walked the length of this bed, bending over it, pulling out some growth I did not want, here and there removing leaves that were too prominent. It seemed in retrospection that there was not a foot of the bed in which I did not have my fingers. The days afterward, at home in my dark-room developing these plates, I was amazed to see in the midst of this picture, lifting its head and with open mouth, a snake, his fangs plainly showing; so I must have made the exposure at the very instant at which he struck at me and hit a lily leaf instead. I had been intent on my footing or the camera so that I did not see him; and I should have paid no attention to slight motion in a composition of this kind, because I was constantly running on muskrats, ground-puppies, frogs, and water snakes while working in such locations.

On the subject of snakes, I must add one other incident of my career. The little boy, Billy, described in "A Girl of the Limberlost," was a very real character, the truth being that the incidents attributed to him in the home of the Sintons really occurred at the Cabin, south. He was a brave little soul, faithful be-

yond telling, entirely devoted to me and to my daughter. One morning during a mid-summer of intense heat he heard me express a desire for rain. He immediately remarked: "I can get the rain for you," to which I questioned: "How can you get it, Billy?"

He answered: "Mrs. Smith says that if you kill a snake and turn its belly up, it will rain before night. I know where I can always find a snake, 'cause us boys go snake-hunting lots of time. I can get you rain."

I answered: "Oh, no, you can't, Billy. That is a silly old superstition."

Shortly afterward, Billy disappeared without telling me where he was going. About half-past three in the afternoon he returned, an object demanding an immediate tubbing. His face was red, his neck and hands brier-scratched. He was dirty beyond belief, but his small features shone with a look of confident triumph.

"Now you'll get your rain," he said conclusively. "I found a good big snake, and I have killed it and laid it right out in the road, where everybody can see it!"

The sky was cloudless, the sun shining clear. I said to him: "What nonsense! Killing a snake never made rain!"

"It didn't?" shouted Billy. "Oh, but look out the window!"

I turned to the window and to my utter confusion saw the rain pelting down in big drops that splattered on the walks as it fell straight from a clear sky.

I do not recall the exact date, but it was a season from eight to ten years ago during which we experienced the most peculiar rainfall I ever have seen. Half a dozen times during that summer enough rain fell from a clear sky to wet the sidewalks and grass at the Cabin, while the main street of the village, two blocks away, was dry. These rains were often so local that at one time my sidewalk on our side of the street was quite wet, while my neighbor's across the street had not a drop.

My husband and I, sitting on the veranda one Sabbath afternoon shortly after dinner, saw one of these local rains falling a short distance east of us, over an area that looked to be no larger than an average building lot in a village. At the same time the martins on our windmill behind the house saw it, and high in a flock they began taking a bath in air by flying through the rainfall, turning and plunging into it again. They kept this up with constant chatter and manifest delight until they attracted the attention of a large flock of chimney swallows, living in the belfry of the village school-house about two blocks away, air line. The swallows came chatter-

ing, dozens of them in a flock, and dashed into the rain for a bath or a drink on wing. All of this time the sun was shining brightly almost directly behind our backs so that the falling drops were tinted in rainbow lights, and the bodies of the birds, heading into the water, seemed to be bordered with rainbow colors, making one of the most exquisite sights imaginable.



THE CURSE OF OIL TO THE BIRDS

WHEN driving from our farm one evening I saw an abject spectacle in the shape of a bird hopping beside the road and climbed from the carriage to investigate. I knew by the bird's bill that it was a finch, but further than that I could not go in its identification as it had been completely immersed in crude oil, surrounding a well inside the fence. I took the miserable creature home, prepared a bath of Gold Dust in as hot water as the bird could bear, and with extreme care about the head and eyes, I tried to remove the oil. Only those who have had personal contact with crude oil can imagine what it meant to have the feathers of a bird soaked in it, then liberally sprinkled with the dust of the summer highway. I worked with all patience for the greater part of an hour, and nearly as long in cleansing the washbowl afterward. I gave my bird a drink, some food, rolled him in a flannel cloth, and tucked him away for the night. His struggle in the oil had been too severe, too long endured, the bath too strenuous. In the morning I found that I had been

working with an indigo finch, which was now extremely clean, also extremely dead.

For fifteen years all my work was in oil country, which gave me the invaluable assistance of many oilmen in locating nests and working around them. I was at the same time in constant contact with crude oil, which is perhaps one of the nastiest things on earth upon footwear, clothing, and a working outfit, while in combination with a living bird I know of nothing worse. Ordinary soap will not faze it. In order to cut it, some especially strong compound like Dutch Cleanser, Snow Boy, or Gold Dust must be used with extremely hot water. The loss of the finch did not deter me from trying to save all the birds I found in field work suffering from having fallen into oil or through having mistaken its glassy surface in some lights for water. The finch was the only oil-coated bird that died.

About the same time I had this experience, one of my friends among the oilmen brought me a much larger bird so plastered with dust and grease that I had no idea what it might be. The same methods I used on the finch brought this bird out the next morning, a lark fully grown, perfectly clean, but so utterly broken in spirit by his contact with the oil and his handling previous to and in the course of his cleansing that when I raised the flannel cover-

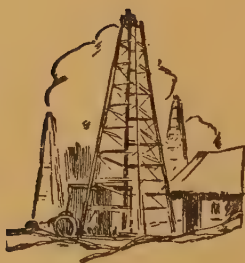
ing him he crouched in the box like a young bird in a nest, opened his beak, and begged for food. I fed him the customary preparation of the yolk of egg made into a paste with equal parts of boiled potato and rolled hemp seed, freed as much as possible from the husk of the grain, and gave him water. After feeding him I lifted him to the edge of the box but he made not the slightest attempt to fly no matter how near any of us approached him. We even stroked his wings. I decided to try a daring experiment with him. I set up a camera, focused it upon an appropriate spot outdoors, carried him out as he perched on one of my fingers, cupping the other hand over him, and setting him on the spot, made almost a life-sized portrait of him. As he evinced no inclination to fly, I turned him in several positions; and finally, when I was ready to release him, he still showed not the slightest inclination to go.

At this time my daughter was closely associated with me in field work and it always had been her privilege to return to freedom all of the sick and the wounded that we had found or that had been brought to us for treatment; so when I finished every picture I could think of to make with the lark, I put him into Molly Cotton's hands that she might start him on his way to freedom. He sat there in perfect con-

tentment until, at my suggestion, she shook him up a bit. Then he stood on his feet, but failed to fly. The Cabin, south, was located in a small village, immediately surrounded by fields, over which larks were constantly flying. At that point, one of his kind passed over our heads at no great height, singing the "Spring o' year" song of the lark. Instantly our bird found his voice, his wings, and his wild spirit. He uttered a sharp cry and flew at such speed that his going was merely an indistinct flash.

My worst experience with an oil-coated bird was that with a shitepoke brought me by some boys who had found him while playing. I can not imagine what occurred to a bird with his length of leg and strength of wing to immerse him so completely in crude oil, unless from some high perch he saw an unfortunate small frog leap into a pool of oil, and like the frog mistaking it for water, he plunged also. Never before nor since have I seen a feathered creature make such an abject spectacle as did this oil-and-dirt-covered shitepoke, but my sympathies were so entirely with the bird that it never occurred to me to take his picture before giving him a bath. As was the case with the lark, he was so miserable and so cowed in his misery that he stood in the wash-bowl of my bathroom and allowed me to be-

gin at his beak with a toothbrush and gradually move onward, cleaning every feather on him, and the skin as well, without making the least effort to get away; but when he was finished, thoroughly dry, and had rested over night, his broken spirit disappeared. He was ready to fly, also to fight for his freedom the instant he was uncovered in the morning.



THE SCREECH OWL OF THE CABIN

THERE have been a few times in field work, while I was on the editorial staff of *Outing* doing some magazine work or particularly pressed for some special picture needed to complete the work of illustrating an article or book, when I have had such rare luck in securing a subject that I almost felt encouraged to believe that the Lord was with me, and putting it into the hearts of the wild creatures to come at my call and give me exactly the pose wanted. Very distinctly in my memory there stands out one day when I especially desired the picture of an owl. I was not particular what kind or what size, for a screech owl can look quite as dignified and wise as its great horned cousin of the big woods. I had been writing an article on what the birds know, and I wanted an owl head for a first paragraph inset as this bird is always used when a bird picture is wanted to illustrate wisdom—not that the owl is by any means the wisest bird of the woods for it happens to be one of the most stupid, but like a great many people, if it will consent to keep its mouth shut

and content itself with merely appearing wise it serves the purpose admirably.

The time was in early December. All day I cudgelled my brain to think where or how I could secure a study of an owl to complete my article. About nine o'clock that night, passing through the back row of rooms in the Cabin, south, next to the orchard, I heard a screech owl calling very close. Not long before, I had come as nearly perfecting myself as was possible in owl notes for a recitation I intended to give. I turned out the lights, darkening the entire back part of the house; lowered the upper sash of the kitchen window; lighted a candle to make a dim glow, screening it with a piece of pasteboard so that it would have the effect of diffused light from the outside; and then crouched beneath the window. After listening carefully, I began low imitations of the bird's cries with all the exactitude possible to me. After a few efforts I felt sure that the bird was answering me, so I waited, as nearly as I could gauge, the same interval of time he did, and kept up the calls, carefully intoning and accenting, encouraged by the fact that the calls outside were beyond question drawing nearer. I think that my heart stood quite still for a second when there was a shadow above my head. Instantly I arose, pushed shut the window, and turned to find the owl sitting on

the back of one of the kitchen chairs, steadily gazing at the light. He had the freedom of the kitchen until morning, as I dared not put him in the conservatory with the canary house. The following day, when he was bewildered by the light and unusual location, I reproduced him, back, front, and sides, in every posture I could imagine an owl might assume in freedom; and as soon as it was dusk I opened the door and I gave him freedom. Then I developed my plates, and the following day my completed article was on its way to the publisher. Several times after that I amused visitors at the Cabin by calling screech owls in at the open window merely to prove that it was possible.

By a careful study of bird calls, cries, and notes, any good imitator can talk with more birds than one would imagine possible. I know a man who can toll an oriole across an orchard, and another who can bring a lark across a meadow. My husband taught my parrot a perfect "Bob White" call. One day there was a knock at the door and when I opened it a man said: "There is a quail among your rose bushes. My wife is ill, and if you don't mind I'd like to get it mighty well."

I asked him to step inside, and showed him the "quail" he wanted to shoot. He surely was surprised.

Unfortunately, my mouth is so very large and my tongue so contrary I can not whistle, so my repertoire is very limited. By accident I learned that I could call a goldfinch. I was washing negatives in the kitchen sink. The back door was open. In the backyard grew a forest of sunflowers for the parrot's winter food, and over them the goldfinches hovered constantly. As I worked, I kept repeating the goldfinch call to perfect myself in it.

I did my very best, and to my astonishment, from the yard came a male goldfinch's answer, "P'tsee me?" Instantly I changed to the female cry, "P'tseet!" The goldfinch answered from the sweet-pea rack. I hid behind the door, and watched through the crack.

"P'tsee me?"

"P'tseet!"

The goldfinch was on the walk.

"P'tsee me?"

"P'tseet!"

The goldfinch was on the paper barrel beside the steps.

"P'tsee me?"

"P'tseet!"

The goldfinch was on the back porch.

"P'tsee me?"

"P'tseet!"

The goldfinch was at the screen door, hop-

ping back and forth to find an entrance, and had the door been open undoubtedly I could have called him inside. Since then I talk with these birds whenever I choose, having ample opportunity, for they are always with us from June until November.

I learned the tribal call of the king rail in the hope of locating him in a swamp, so that I could find and picture his young; but while I could win a reply easily enough, I never could get near enough to secure anything save an effect of snakes in the grass, as he darted among the rushes.

That I could speak shitepoke with sufficient fluency to get a reply, I also learned by accident. I was driving east of the Cabin, south, with a helper, over the levee which crosses the Valley of the Wood Robin, on a trip to the old Aspy orchard. A shitepoke flew up south of us, crossed the road before us, and perched in a scraggy, dead top limb of a big sycamore north of the road.

"That is a shitepoke, isn't it?" asked the lad.

"It is," I answered.

"What does it say?" questioned the boy, who was a lover of birds and one of my most ardent helpers.

"Couk, couk, couk!" I answered.

"Couk, couk, couk!" instantly replied the shitepoke.

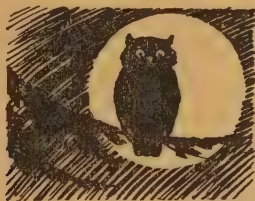
In amazement, we stared at each other. He slackened the horse to a walk, whispering: "Call again!"

I turned, stood on my knees on the seat, and, shielded by the raised carriage top, cupped my hands around my mouth and did my best. The bird replied immediately. I waited a second and called with greater caution, with accent and inflection nearer the bird's own than before. Instantly the shitepoke gave a cry and spreading its wings flew to the road, where it followed three rods in our direction before it realized that the call was coming from the carriage. Since then I talked with the shitepokes and call them across the valley whenever I choose.

There is nothing to prevent any one from talking with those birds whose tribal calls can be imitated with the voice, and a throaty or half-whispered nasal utterance. A commotion can always be raised in the woods by hiding in a bird neighborhood and uttering a series of judiciously spaced and intoned screech owl calls. A large number of birds will answer a call that can be made by placing the lips on the back of the hand, and producing a sharp, loud, indrawn, kissing sound inflected like a chirp. A perfect brown thrasher alarm cry results, and a very good crested flycatcher's. All thrushes are interested, and

cat-birds. Even the domestic canaries, hatched and raised in the bird-house in my conservatory will answer and become much agitated over this call. Slight practice is all that is required.

Any one who is an expert whistler can soon combine vocal and whistled calls so that he can depend on a reply from almost any bird he attempts to imitate. The instant he receives a response, comes the feeling that the bird is his, and a closer tie than ever before existed is established. This possessive feeling comes only through knowledge acquired by personal contact with the birds. The bird that you can teach to bear your presence about its young arouses a warmer feeling than you ever have had for any other of its kind, while the bird which will talk with you is a friend indeed.



BOB AND THE COWBIRD

THE sky was cloudless, the air was still. The dust lay thick on the country road. There were so many cicadas revelling in the drowsy heat and so many thirsty tree-toads calling for rain that it was as if one cicada and one tree-toad traveled with you, singing all the way. To the north lay fields of velvet-green where clover quickly sprang to cover the brown stems of the lately mown crop; dull tan where the timothy that now packed swelling barns had grown; gold stubble thickly dotted with the sheaves of garnered wheat; waving blue-green seas of unripened oats and the jade-colored blades of growing corn.

Above the shorn fields the larks flung down an interrogatory, "Spring o' the year?" as if they feared to state for fact a matter which might be open to question; for the season had been peculiar. Winter had lingered late. Then the spring rains began, cold and prolonged so that the leaves had been unusually slow in opening while the birds had been forced to build low for shelter and later than ever before. Half these larks had lost their

belated broods in the garnering of the harvest and now they hung disconsolate above the shorn fields uttering querulous cries. Beneath them restless shrikes gathered grasshoppers for half-fledged broods. On the cross-rails the song sparrows piped bravely; from fence-corner saplings the goldfinches questioned of every passer: "See me?"

To the south a sinuous line of giant sycamore, tulip, ash, maple, and elm trees and the lapping purl of water marked the river near at hand, while the rattle of my kingfishers and the splash of wallowing carp told the story of affairs of importance going on there as well as in the fields. Though it was mid-afternoon the prickly heat held unabating. The patch of red backs under the oak at Stanley's line fence meant that the herd had been driven from grazing, and bunched together, were lazily chewing their cuds and fighting flies. A flock of cowbirds circled over and around them, snatching up insects their stamping feet drove from the grass or boldly foraging on their glossy backs.

Patience picked his way slowly while each foot fell with a soft, rhythmic pat that raised a small cloud of dust. The lines swung loosely from my fingers as I sat on the edge of the seat and with roving eyes searched for "studies" from my vultures hanging a mere

speck in the sky above the Limberlost, to the hare scudding across the stubble or the winnowing of grasses that told of a snake sliding to the river.

At Stanley's Bend, Patience neighed sharply, pricked up his ears and broke into a swinging trot. The beast found intelligence and voice to show its anxiety to reach Bob; for Bob meant to him rest, shade, water, grass, and Gypsy, with whom to make friends. And to me Bob meant the best person of all to whom to appeal for help, for "the birds know when the friend they love is nigh," and despite the deafening explosions of the gas-engine, the steady rumble of the balance-wheel, the creaking of the turning-table, the rattling of rod-lines, the constant wash of the streams of crude oil that poured into the big black tanks, and the sharp metallic click of the valves as it gushed through the pipe-lines, the birds clustered around Bob until there were half a dozen there to every one on any other lease beside the river.

The horse neighed sharply. There was a clear whistle and the bark of a dog in answer; a second later the pointer leaped the fence and came dashing down the path to touch noses with her friend. Then a man's head came to light among the bushes, his shoulders lifted above the bank; with a spring to equal the

dog's he cleared the fence and came hurrying to the carriage.

Without a word of salutation or apparent notice he walked straight to the small black and began knotting the hitching strap around the tree. As his hands moved a big diamond gleamed in the light. I knew Bob, but you never could tell about an oilman if you did not. An elegantly dressed individual might be a promoter with capital so nearly atmospheric that he lacked the price of his dinner, while the begrimed creature in jumpers and sweater might be a capitalist whose automobile waited in the stubble of the adjoining field while he inspected his holdings.

"Is there something for me?" I asked.

"There is," replied Bob.

He lifted the camera, picked up the tripod, ordered Gypsy to remain with the rig, then led the way down the path, through the boiler house, where the exhaust pipe uttered deafening shrieks and the ground trembled with the throbbing of the big black monster, past his brooding quail and wood robin, past his blue finch and song sparrow down to the nest of his black-masked warbler.

"But I thought we agreed not to disturb her until she had brooded at least a week," I objected.

"Look!" said Bob, and kneeling, he bent

back the wild plum bushes bringing to light the daintiest of little grassy, moss-covered cups. It contained only two of the beautiful warbler eggs that had been in it the day before, and two big eggs with a white ground finely dotted with purple.

"What does it mean?" questioned Bob in rank disgust.

"Cowbirds," I answered. "When did you first notice this?"

"Early this morning," replied Bob. "I heard the warblers fretting and went to see if a snake or squirrel were bothering them. Two of their eggs were gone and those two big speckled things in their place. Make your study quickly if you want one, for I am going to smash them."

"Oh, no, you're not, Bob," I pleaded. "I wouldn't have you touch that nest for a farm. Those warblers have just begun brooding and the cowbirds have disturbed them all they will endure already. We will slip away quietly while you guard that nest as you never before guarded one. It is most uncommon for a cowbird to leave *two* eggs in a nest, so if they hatch, with those tiny warblers, why then, we shall have a picture worth talking about."

"But will the warbler brood on them?" protested Bob.

"Hasn't she been on them all day?"

"All day," growled Bob, "and nothing but waiting for you ever kept me from pitching them out. I don't see how a bird almost as big as a blackbird ever laid in that tiny nest, and what became of the warbler eggs?"

"The cowbird ate them," I answered. "She disposed of one each time she deposited one, though how she managed to drop an egg in that nest without breaking the warbler's is a mystery."

"I can easily break hers, right now," volunteered Bob, with that twinkle in his eye in response to which his discerning mother named him Bob Burdette.

"But you never will, Bob," I coaxed. "What you will do is to stand guard and make sure they hatch, and in the meantime find me the other cowbird eggs. She will lay two more, possibly three."

"What!" cried Bob.

"I said you would find me the remainder of her eggs. We won't touch these, to make their hatching doubly sure, but we'll make our studies from the others."

"Well, wouldn't that freeze you?" marvelled Bob, mopping perspiration. "I'm going to do it!"

"Good boy!" I applauded. "I know you don't very well like the job, but this is our chance for something really rare. The cow-

bird will come back to-morrow, at the same time she did this morning, and select the nest of some deep builder, so if you are on the lookout you are almost sure of seeing her."

The following morning Bob sent me word that the cowbird had imposed an egg on his vireo; to come quickly if I wanted a study of it. I knew exactly what that meant. Bob uncovered in front of his vireo nest. The little mother vireo was so dainty, so delicate, so exquisitely colored! Her beak was elegantly shaped, her back pale gray, her breast white, her ruby eyes so wise and so trustful, while her confidence in Bob, who passed close by her many times every day, was implicit.

Of the dozens of nests Bob had located there was not one so exquisite as this vireo's, for at the branching of two elm twigs, no higher than my head, she had built a pendent cup lashed to the limbs with bits of string and hair, wound securely round and round and even carried to near-by limbs. When it was solidly timbered, securely fastened and softly lined, to Bob and to me, who had watched its progress, it seemed complete, but the little bird-mother, with exactly the same loving impulse that is in the breast of a human mother when she adds lace and ribbon to her baby's cradle, set about gathering heavy, rough, snow-white cobwebs and festooning them over

the outside until the nest appeared as if dipped in ocean foam. She stuck through these webs a number of fantastically shaped little dried, brown, empty, last-year's seed-pods, as a finishing touch, then Bob took off his hat.

He said she was a lady so no gentleman would stand covered before her. He fairly worshipped the delicately colored, jewel-eyed little pair and their exquisite cradle. Knowing what the destruction of a single vireo egg meant to Bob, I went with all possible haste.

He was angrier even than I had feared, for the cowbird had eaten one vireo egg and in depositing her own, cracked another. He had a little bowl-shaped paddle whittled out and ready, and on my advice scooped out the broken egg, lest it soil the contents of the nest in bending down the limb. We tied the branch securely so in a short time the two vireo eggs and the big speckled one were on record. Scarcely had the shutter clicked when Bob scooped out the cowbird egg, dropped it on the ground and vindictively set his heel on it. I shuddered to think of the picture he was spoiling by not allowing that egg to hatch, but there was no use in asking him to leave it. There are times when Bob can say no; he had reached his limit when he left two cowbird eggs in the warbler's nest.

"I'm glad that's over," said Bob, drawing a long breath. "I'll not stand having this little gray soul pestered again. If that cowbird comes here to-morrow I'll take my shot-gun and blow her to atoms."

In a few minutes the vireo was on the edge of her nest, peeping inquiringly into it to see what had happened next. It really seemed as if she ruffled her feathers with satisfaction as she settled to brood on her two eggs.

The following morning, Bob kept his word about standing guard. He did not see the cowbird; but visiting his line of nests down the bank, when he thought all danger to the vireo was over, found that this bird of brass had made a house-warming party all by herself and laid the *first* egg in the newly completed nest of a song sparrow in a wild crab. While he awaited my arrival he noticed that the little father and mother sparrow were working feverishly, and when we reached the nest a new floor was laid over the cowbird's egg, a sparrow egg was deposited, and the mother was brooding. That made four eggs for the cowbird, so we figured that it would be the last, but the morning after Bob saw her sneaking up the opposite river-bank with such elaborate caution it made her conspicuous.

She entered a thicket of wild rose and blackberry that contained no nest of which we knew,

so he did not follow her. But wonder as to what she could have been doing there kept filling his mind, so he stepped into his boat and started across the river, in time to see her leaving the thicket in what appeared to be a frenzy of excitement, so Bob decided that she had found a place to deposit her last egg and was rejoicing over the successful placing of her family.

He entered the bushes locating the nest of an indigo finch that he had not suspected was there. There were two of the delicate opalescent eggs of the finch with the last egg of the cowbird, still warm to the touch. Again there was a hurry call. The study was beautiful. Bob unceremoniously dumped that egg also.

He heroically stood guard at the warbler's nest and every few days we speculated as to what would happen there. Suppose all four of the eggs hatched. Would those dainty little warblers be able to supply food for the cowbirds and their own babies also? Would they feed their own and starve the strangers? Or would the beaks that could open widest and lift highest get all the food and the warbler babies be trampled underfoot and die of hunger?

These questions soon were settled. All four of the eggs hatched, and although the warbler babies should have been out first, we were

amazed to see the cowbirds emerge the same day, thereby clearly proving that they required several days' shorter incubation than the young among which they were placed. The cowbirds were three times the size of the warblers in the beginning so they filled the nest. They crowded from the first. Scarcely was their down dry until they lifted sturdy big heads, opened cavernous mouths, and the clamor for food began.

The tiny specks of bugs and worms that the warblers were able to collect made small impression on their ravenous appetites. All day their heads were up, their mouths wide open. All day those little warbler parents darted hither and thither, nervously searching for food to satisfy the greed of the foster children thrust so unceremoniously upon them. If their own succeeded in securing a tiny morsel, really it was by accident, for they were so buried from sight and their feeble cries so drowned in the lusty clamor of the cowbirds, that their end seemed apparent from the first. The smallest warbler had no chance at all for in a few days Bob lifted him from the nest with my hat-pin, dead and trampled flat. I am afraid he "said things" when he did it. The beak of the remaining warbler did not reach the butts of the cowbirds' wings when he raised his wobbly little head to join his voice

in the hunger-cry which went on all day, but some way he got barely enough to keep him alive.

The old warblers seemed to feel that the continual cries from their brood were an imputation on their housekeeping, for they raced around pitifully, taking time neither to bathe nor eat enough. Soon they were mere shadows. But day by day the cowbirds waxed fatter and fatter while their cries grew more vociferous. Day by day the warblers grew thinner. The baby's crop hollowed until it was drawn from sight, his eyes sank deeper and he grew more patient.

Bob's only relief was to watch his vireos thrive. There being but two of them they were unusually well fed and grew to remarkable size and beauty. Every time he approached the nest the proud little father came turning somersaults through the air and inquiring with true pulpit oratory, "Do you see it?" "Do you hear me?" "Do you believe it?" while Bob with bared head and worshipful eyes said that he did. One day he found them on the edge of the nest and sent for me to hurry, for he not only wanted a picture of them, but when they went it was time for the warbler's queer brood to go also.

I arrived in time to secure a study of them, but soon they were gone. It was not until

three days later that Bob found one of the cowbirds on a limb, the other on the edge of the nest, and both of them so stuffed that by no possibility could they point their beaks straight forward over their swollen crops. The warbler was fully feathered. There was not a trace of down on him, and by every right he should have been the first to leave the nest; but he crouched down as if enjoying his first comfortable breathing-space, and clung to the nest as if he could not move. His crop and eyes were sunken, his beak and feet pale, his throat anything but the bright, healthy color it should have been. Starvation was written all over him. There seemed to be nothing of him but a little bunch of bones and abnormally developed feathers. His plumage almost curled.

The largest cowbird climbed to the edge of the nest and sat there while the other stayed on the limb. I tenderly lifted the warbler and set him between them to contrast their size and repletion with his condition. They never attempted to fly, but opened wide beaks and raised cries for more food, though where they were to put it one could not see. I made several exposures then carefully put the warbler back into the nest, where he remained all day, the cowbirds staying in the same bush.

Then came the baby warbler's picnic. The

old ones alighted on the nest first when they came with food and if he were ready he got a good share before the vociferous cries of the cowbirds called them away. The following day he had so improved that he could move in the nest while the cowbirds, fat and sleepy-eyed, flew to a near-by walnut shrub, where I made a last picture of them. Next day I could not find them and when I remarked that they seemed young to have joined a flock of their kind, Bob looked so peculiar that I lost no time searching.



MOLLY COTTON'S HUMMINGBIRD

WHEN Mr. McCollum sent me word that one of his sons had located the nest of a hummingbird, I hurried to see it. We found the location in deep forest in a small ironwood tree; the nest so little that only by a miracle had any one ever seen it at all.

The tiny cradle was built of lichens lined with chestnut-colored down fine as silk, saddled on a limb twice the thickness of a lead-pencil, and bound fast with cobwebs. A silver dollar laid on top would have sheltered it perfectly during a rainstorm. There were no eggs, and as it had been discovered ten days before and the tree bent to examine it while the birds had been building, I concluded they had abandoned it. I am sure it was completed outside, but I do not know that it was finished within. Because it was the daintiest piece of bird architecture of my experience a picture was made of it even when it was empty.

But I have had several real experiences with hummingbirds. The first, when one of them mistook the front window of the Cabin for a pool of water, and in trying to fly across

it struck the glass full force and fell stunned. I heard the blow, hastened to pick up the bird, and while trying to think what could be done for it I saw that it was reviving and soon it flew away.

Whenever Molly Cotton enters the Cabin alone, simultaneously with the setting of a foot on the threshold she always sings out: "Mother!" One inflection she gives that call means: "Are you at home?" Another: "May I go to Sarah's?" And yet a third, which sends me flying at the first tone of it, means a heartbreak. This day came the trouble call, sharply defined as the alarm-cry of my robin. Molly Cotton stood in the doorway with big excited eyes shining from a background of flushed cheeks and flying hair. On her outstretched palm lay a ruby-throated hummingbird, both wings widely spread, but making no attempt to fly.

"Doctor it!" she demanded.

Is there anything more difficult for a mother than falling short of what her child expects of her? I did not know anything to do for a sick hummingbird, those daintiest creatures of nectar and sunshine, but as I looked on Molly Cotton's distressed and eager face, I knew I could not tell her so. Of course I realized there would come the inevitable hour when I would not be able to furnish "balm

for every wound," but I could not fail her then, so I temporized.

"Where did you get it? Do you know what is the trouble with it?"

"I gave a boy my soda dime for it. It's hurt with a sling-shot."

"'Hurt with a sling-shot!' " I cried. "He'd better be punished instead of paid for that trick."

"But, Mother," said Molly Cotton, "the boy who had it wasn't the boy who hurt it—that's why I bought it; and," she added with characteristic justice, "the boy who hurt it ran. He was awful sorry. He just shot. He didn't think he could ever hit it. Really, it was an accident!"

"And that is the way almost every song-bird that is shot meets its fate," I retorted angrily. "Men always must try if they can hit a thing, then when a bird as brilliant as a butterfly or a flower falls they are surprised and so sorry that it is dead. They only wanted to see if they could hit it. It is the old excuse."

Molly Cotton advanced a step, holding out the bird. "Well, Mother!" she said. "Aren't you going to *do* something?"

"Take it into the conservatory," I answered, striving to collect my senses. First aid to an injured hummingbird! What would it be?

Of course its back was almost or quite broken, from those wide-spread motionless wings, the heavy breathing, and the eyes protruding with pain. From a box of abandoned nests a large one was selected with some fine twigs in the bottom, to which the bird was transferred with care.

Wounded people are always thirsty, so I proposed to give it a drink of sweetened water. Molly Cotton ran for a teaspoon and the sugar, then we held a few drops of sweetened water to the bird's bill. At the touch of it the little creature drank and drank and ran its slender thread-like tongue over the bowl of the spoon, searching for particles of sugar. Every hour that afternoon it was given more. When Molly Cotton came from school she carried it honeysuckle and trumpet-creeper blooms, and when either honey from the flowers or sweetened water was put against its beak it ate and drank.

I confidently expected that it would be dead by morning, but instead it had folded its wings and before the day was over was clinging to the twigs with its feet. Then I took courage and went to work in earnest. I put it in a cool shaded place, adding hard-boiled egg thinned almost to liquid to its diet, and by the third morning it could walk and had climbed on the edge of the nest. When I saw that, "It

is going to get well, sure as fate!" I cried to Molly Cotton.

"It's going to get well! It's going to get well!" she exulted, dancing for joy.

Straightway she exacted a promise that she should be the one to open the door and give it freedom, which surely was her right. Then she thought of another world to conquer.

The night before Bob had brought me a little reddish-brown mother bat, weighted with four babies clinging to her body. I was to photograph them that day, then put them back where they had been before night. Molly Cotton thought the bat should be fed also. She argued that if the bat had been free the night before, her mate would have fed her and with those four babies to care for she must be almost famished. So I was called upon, in all confidence, to tell what bats ate.

I told her we could not get for a bat, in daytime, what it found on wing at night, but I thought it could do no possible hurt, so I suggested fresh, warm milk. Molly Cotton took a nickel from her purse and sped to a neighbor's for milk, while I whittled out a tiny wooden paddle. We dipped this into the milk and held it to the bat's nose. She instantly seized it between her sharp little teeth sucking and gnawing at it. She would not let go, so we took the hummingbird's spoon

and dropped milk a drop at a time on the paddle. That bat turned up her head and drank and drank like a famished creature.

We had a splendid chance to study her face. It was shaped like a young pig's, only flatter. She had a small, round, flat nose like a pig's, a face very similar, and ears round like a mouse's, instead of pointed. Her fur was silken fine and of beautiful color. Each of the four babies was a miniature of the mother. When she was quite satisfied she let go the paddle and went to sleep. Until her picture was taken and she was returned to freedom, Molly Cotton fed her milk, which she took eagerly at every offering.

When we were congratulating ourselves that the hummingbird was saved, came disaster. I do not know why I was so thoughtless. Its ability to climb to the edge of the nest should have warned me. The bird tried its first flight, but fell from the shelf on which the nest was placed, five feet to the cement floor, and died in a few seconds.

Our next hummingbird experience was short. I met Mr. Hale on the way to the post-office. "Hold fast all I give you," he said, reaching out a hand. What I got was a hummingbird lying on its back, its eyes closed, its feet drawn up among its feathers, seemingly dead.

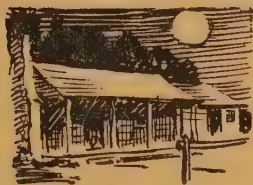
"Found that among the sweet peas this morning," he said. "It forgot to migrate and took a chill." It was October and the night had been heavy with frost.

I cupped both hands around the bird and on reaching the Cabin could see that it was alive. I gradually warmed it until it opened its eyes. Then I told Molly Cotton to bring me four grains (granules) of granulated sugar, with one drop of tincture of ginger and five of water added to them. We held this mixture to the bird's bill and it drank feebly. In a short time it began to ruffle its feathers and shiver.

Then I sent Molly Cotton to carry my camera to the south side of the Cabin, where she had a La France rose bush in full bloom that we had covered during the night. I followed with the bird. It soon revived until it could cling to a dead twig on the bush, though its tail was tucked, its feathers ruffled, and it appeared chilly. We were running no risks, so we took its picture. I should have taken the first one while it lay on its back, to all appearances a dead bird, but I did not think of it until too late.

I put in a new plate, then when all was ready Molly Cotton gave the bird another drink, a big generous one. The air was rapidly warming with the rising sun and the bird

now revived to the point of feeling dishevelled, for it ruffled its feathers, shook them, and laid them so it looked very sleek. The little thing felt spruce indeed, considering a few moments before, so I made a second exposure. While I was hurrying to change a plate for a third, the bird hopped to a twig above it, gave its tail and wings a flirt, then with a whizz darted over the nearest trees and in a bee-line, as far as we could follow him, sailed toward the South.



THE KINGFISHERS IN THE GRAVEL PIT

THE old pit from which the Grand Rapids people took gravel for the railway used to be a beautiful spot, a fine place for birds of all kinds. Gravel for two railroads had been taken from one small hill, the presence of which in this stretch of low country was difficult to explain, for on the east lay the river, south the Limberlost, west the big ditch draining it, and north more swampy lowland. A basin had been shovelled from the main bed of gravel, then veins running through it in different directions had been followed up as far as pay dirt was found. Heavy rains and drainings from the swamp had transformed these into a small lake and canals. As this happened twenty years ago, the high parts were covered now with tall poplars and maples, the low with a beautiful fringy-leaved variety of willow, the canal and lake surrounded by cattails, bullrushes, and tall swamp-grasses, while everywhere there grew luxuriant vines, or almost impenetrable thickets of wild rose, button bush, and all kinds of swamp underbrush. The river was only a quarter of a

mile away while solid swamp covered the intervening space.

The back wall of the old pit was twenty feet high facing east; nearly a foot and a half from the surface was the opening of a tunnel which proved to be six feet deep when we measured it with a willow. I knew it was a kingfisher tunnel, but when we threw light into it with a pocket mirror, we could see nothing. I was sure the work was fresh, for a small heap of sand and gravel that had been pushed from the excavation lay directly beneath, not yet spread by wind and rain.

That a bird could have drilled such a tunnel seemed absolutely impossible, for the bank was hard clay, thickly intermingled with gravel and sand, baked by the glare of the sun from earliest morning until night. Above the opening meadow-grass waved, beside it alders and willows grew, while beneath, where the last of the gravel had been taken out, flourished a large and prosperous frog-pond. One had to creep around the edges of this pond clinging "to the willows," in reality, as well as to dig in with the toes to climb to the location. We tried throwing a clear shaft of light into the far end of the tunnel, but failed to see anything except that there was a turn having a still larger opening made to the north. So we gave it up, and I began

work on the nests of a cuckoo and a summer yellow bird, and later on the locations of a robin, two catbirds, and a purple finch.

This took me back to the pit daily. For three mornings I climbed to the opening and with a hand-mirror explored its interior, but to no avail.

One day, two weeks later, when passing the embankment, a swallow came from the opening and flew away. Immediately I climbed up, throwing in a strong ray of light with a large hand-mirror, to search the back of the tunnel. As I was despairing, there was thrust suddenly into the light a big scarred beak, the biggest eyes I ever had seen in the head of a bird of that size, and a flaring crest. The figure appeared so startling as it flashed sharply on my vision that I jumped until I dropped the mirror, sliding down into the frog-pond. But I did not mind that. I had a brooding kingfisher, the bird of ancient mystery, an object of tradition in all time—whether eluding naturalists of Greece, controlling the weather of Italy, or driving away evil luck and devils in Germany. I confess the brooding bird appeared like a devil to me back there in the dark, while as she rushed from the nest flying toward the river, the rattle she rolled was a sound as uncanny as I ever heard from the throat of any bird, save only the loon.

What to do was the question. Go after a man and have him dig in to the back of the nest? That would give a picture of the eggs, but no doubt destroy the nest and drive away the birds. Wait until the young hatched and try for a picture of them? That seemed more likely to yield the best results, for surely when the old were feeding they would not desert the young, even if the nest were opened at the back. Then the babies could be pictured while the old ones were away, carefully replaced, and then, too, there was every chance that with set cameras, shots at the old birds could be taken as they entered and left the nest. So I decided to wait. That day the bushes were carefully straightened and my tracks covered when I left. Also arrangements were made with a farmer, plowing in the adjoining field, to watch the pit, and drive away small boys.

After that I haunted the location. I was there every day. On a morning of the second week of June, with my mirror I caught two little kingfishers peering into the light. Then I went after help. The earth was so hard that when a big strong man set a shovel on the spot we had measured then came down on it with his foot, it curled up as if made of lead. We had to bring another shovel and use a hatchet for most of the work. We cut an

opening into the tunnel, six inches from the turn to the nest, fitted a shingle to cover it, trimmed a piece of sod to fill the hole so that it could not be noticed from the top; thus I had free access to the young. The old birds never knew it. On their return they entered the tunnel without the slightest hesitation.

I always waited until their morning feeding was done. As they have long, tedious waits on stumps and dead limbs above the water to catch the crabs and minnows which form the greater part of their diet, and always utter their rattle on starting from the river to the nest, there was plenty of time to work between their visits, then drop the young into the nest and cover the opening before the old ones arrived. The regurgitations proved fish, clams, and crabs to be the staple of diet, though there were a few berry-seeds, occasionally the striped legs of a grasshopper.

The first time I took those babies into my lap I was delighted. They were the quaintest young birds I ever had handled; the first of their kind. No wonder the snowy white eggs of the kingfisher are so very oblong. They have to be to allow the growth of that enormous bill, for enormous it was, even on the babies. The little fellows had eyes as large in proportion as their elders, crests of blue coming, a tiny white dot before either

eye, broad collars of white, steel-blue wings and backs, tail and primary wing-feathers banded with white, and white breasts touched with blue below the crop. The old birds were exactly like them save that the breast of the female was russet where that of the male was blue.

In the midst of the series came a rare June freshet. The Limberlost arose to meet the river; the water crept up and up until the ditch and river were raging torrents, while all low country was under water. I had not finished with the babies. For three days I worried, the fourth the rain stopped, the sun shone, so I started with Molly Cotton to drive to the pit. We found the water a few inches deep over the road before we reached the Limberlost bridge. Molly Cotton was dubious, but I was determined, so we drove Patience on to the bridge. Beyond it was a terrifying sight.

The water of the big ditch was running like a mill-race; the flood covered all the fields and swamp save a few of the highest places. It was above the fences, covered with floating logs and débris. We could not go on, neither could we turn around. We unhitched the horse, tied him to the bridge, backed the carriage off into the road, and when we thought we were far enough to miss the em-

bankment, tried to turn it. We had not gone so far as we supposed, for it ran down a steep place until the water filled half the bed reaching my best camera.

With all our might we pulled and pulled but could not budge it. Then we corralled some floating rails, laid them out to the running gear, Molly Cotton walked them and set the camera and my waders upon the seat. Next we brought down the horse, tied the lines to the tugs and to the carriage, held up the shafts, and with Patience's help drew the carriage into the road, where we harnessed and drove back.

On the road leading east from town we held a consultation then decided to drive over to the levee and prospect from there. We turned south at the first crossing, but when we came to the gate we expected to enter, the water was a foot deep. That portion of the meadow lying beside the ditch was all under water, but there was no current. I was doubtful about it when Molly Cotton proposed to put on my waders and prospect. It was meadow that cattle had grazed over, I had driven through it all the spring, she could feel her way before her, so I consented. She put on the waders, pinned up her skirts, took a water tripod, and started. She wore a flaming red waist. In the midst of that pool I saw she was attracting

the attention of a cow. I did not know whether the cow would enter the water, but I did know Molly Cotton could not hurry on that soggy ground, with those heavy waders; so I called to her to come to me as quickly as she could, that "I saw something" I wanted up the road. Whenever I "see something" all of my family prepare to capture it. I knew that would bring her with haste, but not frighten her. On came the cow.

"Hurry all you can, Molly Cotton, I am afraid it will get away! Do come faster!" I urged. She barely reached the gate in time, and only saw the cow when she left the water. She said I had been wise, for she could not have helped trying to run if she had seen it. As the water was within three inches of the boot tops, she surely would have fallen.

Next we decided to drive through, so we started. It was a treacherous journey, for the way was covered with stumps and logs besides the floating stuff. We unreined the horse, which was wise, for half the way across the carriage was floating, we were on the seat holding the camera, while Patience swam several rods. We reached high ground safely, driving over the ridge, confident that we were on the way to the nest. When we were almost there we came to a ditch ten feet wide and six feet deep, that we had forgotten. I had

hoped to reach the nest, secure a picture and cross the corn-field to the road, paying for any damage we might do to the young corn. Here was another full stop. It seemed to me that I could not make that trip back again. I proposed to drive to the south of the ditch, try to swim the horse across, and thus reach the bed of the road from which we had turned back at the bridge. This time Molly Cotton was dubious. I drove the horse to the water, where he showed his good sense by balking for the first time in his life.

He simply would not enter that water. I suppose the stiff current and the floating logs dismayed him. We had to back out, facing the flood and the cow again. It was rather sickening business. I was glad when it was safely over. After the flood subsided I went to see the place I had tried to drive into. It was an abrupt embankment and where I would have driven the water had been nine feet deep with a stiff current, so undoubtedly the horse saved our lives by refusing to enter.

After we left the meadow the last resort was to drive south on the road until we reached the corn-field, cross that, and thus approach the quarry on its west side. We stopped to take a picture of the kingfisher, fishing from an old fence-post; with a small camera and long distance it was, but a beautiful thing.

Then we drove south. The road lay straight before us while at no place was the water more than two feet deep, so we were safe there. We got into the field, then into the quarry, and were overjoyed to find our birds. During our absence they had grown, it seemed, fully a fourth larger, the pinfeathers around the base of the beak had opened, making their faces much handsomer, the plumage had developed and taken on color, while the size of their eyes, beaks, and crests were comical. We sat on the ground and played with them while we rested from our rough experiences.

We used especial care with those studies of them, as we thought they would be the last. In one of them we felt repaid for all our efforts; but in field work one never can tell, for this was not the end. That came unexpectedly two days later. Passing the quarry with Raymond, one of the best assistants I ever had in field work, I suggested to him that we see if the birds were gone. As we approached, there were the youngsters in the doorway, evidently meditating their first flight. They would crowd up beside each other, half lift their wings, peep down over the edge, draw back, then threaten to try again.

"Oh, Raymond!" I gasped. "*That* is my picture! There is the real natural-history picture of those birds. Fifty of them made

when taken from their nest and set up somewhere are not worth that *one!* Oh, I must have that!"

"Can't you take it?" asked Raymond.

"I must," I answered, but I did not know what I was attempting, for that picture cost me the highest price I ever paid for any study, with the exception of one landscape.

"Cover the hole with your hat until something can be found to stop it," I said. Raymond in his eagerness splashed through the frog-pond to do as he was told. A piece of sod securely stopped the opening. Then I figured on the light and where my camera must stand. Of course the location fell in the frog-pond. There was no way to place the camera, so we began carrying stumps and rotten logs to build a foundation. When we had a fairly solid basis we brought rails from the fence near by, laying them lengthwise and then across until we had a solid platform above the water. Then I set up my tallest step-ladder, placed an eight-by-ten camera on top, focussing on the opening. The camera was exactly right, so I put in a plate, attached the sixty-foot hose, tossing the bulb on the embankment.

Then I went in front, set the shutter at a snap, and climbed up to remove the sod. Raymond crowded close behind me to help. We

broke into a colony of digger wasps. They swarmed all over us. Raymond had one on his ankle, also on his arm. I had one on my arm and one down the back of my neck inside my linen collar. I do not remember that anything ever hurt me more. It was the middle of June, our time of most intense heat; I had worked carrying rails and logs until my blood was overheated, while the sting was on my spine, close the base of the brain. I was so paralyzed that it was some time before I could move to doctor Raymond with wet clay.

I sent him into the willows in front of the nest, gave him some lunch and water, telling him to sleep or do anything save make a movement. If he happened to see the young coming he was to signal me. Then I went upon that embankment, lay down, hung my chin over the edge and fixed my eyes on the tunnel. Fifty times the youngsters came close enough that I could catch the gleam of their bills, but seeing the camera they retreated. Many times it seemed I should have to give up because I could not endure the punishment. Like a mustard plaster that sun poured down on my shoulders and arms. I felt as if I were being blistered, and I was. Each upper arm and the tops of my shoulders above my heavier clothing were burned into patches of water blisters as large as my hand, while I can not

tell how those wasp-stings throbbed and ached.

It was two and a half hours by my watch; I was almost insensible, when a faint whistle from Raymond recalled me. I looked down, snapping on the instant, and secured the coveted picture. This in connection with the two fishing pictures of the grown birds are the only real, natural kingfisher pictures I have ever seen. I could scarcely pack my camera and return to the Cabin. I was red as red flannel, long ago perspiration had dried up, while my flesh burned as with fire. I got into the bathtub, turned on hot water and took a Turkish bath until perspiration started again to sweat the heat out of me. Then I dressed my blisters and went to bed for the remainder of the day. But never since have I been able to endure the same degree of heat for that length of time.

Whatever it cost, it was worth while. The picture is one of my finest, also I got some mental impressions of that day of the swamp in the quarry, and across the road, and of the line of the river, which I now could reproduce to the least detail. I could catch every breath of movement among the willows and poplars. There were water rats riffling the pool, and snakes weaving among the grasses. All birds of spring were busy everywhere. The red-winged blackbirds, there were myriads of

them, seemed especially to delight in swaying on the rushes and splashing in the water. It appeared to me, up on that embankment, in the merciless heat, throbbing with wasp-stings, burning with thirst, blistering with sunburn, that those provoking birds took pleasure in bathing with exaggerated slop and splash. For one insane moment, after the shutter closed, I had an idea of throwing myself into that pool and splashing also. Then it came to me that in my condition to enter cold water meant death, so I waited and endured the further punishment of the hot bath, or I would not to-day tell the story of my friendship with the kingfishers.



LITTLE CHICKEN

I AM indebted to Otty Bolds, who owns that portion of the Limberlost selected as their happy homes by the black vultures, for word of their location. Mr. Bolds sent a messenger to tell me that in a big hollow elm tree, of last year's felling, was a nest containing a bird baby as big as a gosling, but white as snow, and beside it a pale blue egg heavily speckled with brown and shaped like a hen's, but large as a turkey's.

This was bewildering. I knew where for three yearsturkeybuzzards had nested in a hollow tree on the Wabash River, on Dan Hawbaker's farm, but their eggs were cream-colored. The blue eggs "sent me to sea." We had no native bird that laid the egg described. If the description were at all correct, it could only mean something unusual, and strays in ornithology are extremely interesting.

On hearing of a bird that is new to me I think of Pliny's classification of species: "those that have hooked tallons, as hawkes; or long round claws, as hennes; or else they be broad, flat, and whole-footed, as geese," wondering in which class the bird can be

placed. I was all eagerness to see these birds, but hesitated, not because of doubts that I would go and make studies of them eventually, but because it required thinking as to how it could be accomplished. The Limberlost, at that time, was my one spot of forbidden territory. A rash promise had been made never to go there, but this sounded too alluring. I immediately sought my husband, commonly called the Deacon, because he resembles a minister in appearance, only.

"I want to take back my promise not to go to the Limberlost," I said.

"Can't release you," he answered.

We do not live long with people in this world until we discover their weak spots. The Deacon's is relics, specimens, and curios—first cousin to natural history.

"What a pity!" I murmured meditatively. "This is the only opportunity I ever have had to reproduce a white baby as large as a gosling, with a big speckled blue egg beside it, and, of course, I'll never have another."

"What's that!" cried the Deacon.

"How do you expect me to tell what it is, if I must not go and see?" I countered.

"When did you want to go?" he questioned.

I thought of the old adage about striking the hot iron and answered promptly: "This minute!"

"But I can't go now," said the Deacon.

"Then the blue egg will hatch, so I won't get a picture of it beside the white baby. I am reliably informed that it has large dark speckles on it—the egg, not the baby. Mr. Bolds sent a man to tell me."

"Umph!" he muttered, starting toward the stable.

My soul was joyful as I went to pack my paraphernalia.

This was the beginning of a series of swamp-studies that is, in all probability, without an equal in natural history or photography. The Limberlost at that time was dangerous. It had not been shorn, branded, and tamed. There were excellent reasons why I should not go there alone. Most of it was impenetrable. There had been one or two roads cut by expert lumbermen, who had located valuable trees; a very little timber had been taken out. No one knew when tree-hunters were there, while always it had been a rendezvous for outlaws and cutthroats in hiding. The swamp was named for a man who became lost in its fastness and wandered around, failing to find a way out until he died of starvation. In its physical aspect it was steaming, fetid, treacherous swamp and quagmire, filled with every danger common to the central states.

A few oil-wells had been drilled near the

head of the swamp. It was over a road, cut to one of these, that we were to travel as far as a certain well. After that the way led north a quarter of a mile, then straight east, until we came to the prostrate trunk of a giant elm, with a hollow five feet in diameter. That sounds easy, but it was not. In the beginning I had to pay a tenant a dollar for the privilege of driving over the road the oil and lumbermen used. A rod inside the swamp the carriage wheels on one side mired to the hub. Another rod, I took the camera intended for use in my lap, shielding it with my arms. Every few yards, I expected the light carriage we drove to be twisted to pieces. We left it at the oil-well, starting on foot with an ax, hatchet, and two revolvers, to find the tree.

The Deacon wore high, heavy leather boots, while I wore waist-high rubber waders. We had to cut our way before us, as the felled tree had been hollow, not worth taking out, so no road had been made to it. For two hours we searched for that log. The time was late June; there was not a breath of air stirring in the swamp; there were steaming, fetid pools everywhere, swarms of flies, gnats, mosquitoes, and poisonous insects, masses of poisonous vines, while at every step not only the ground, but the bushes, had to be watched for rattlesnakes. The muck was so spongy we sank

ankle-deep, branches scratched or tore at us while logs we thought were solid let us down knee-deep.

An observer readily could have seen that the Deacon had his cognomen by contraries. His face was crimson, his wet clothing plastered to his shoulders. He smoked one cigar after another to drive the clouds of insects from his head and neck. The portion of my body covered by rubber was in a Turkish bath, while the remainder was bitten until I was lumpy as a beaded pin-cushion, but every breath was a prayer that the Deacon would not lose his patience or give up. And he did not! Of course we had to find it after a while, when we searched like that.

I was glad that it was the Deacon who first sighted the location. He would be more interested in it if he did. When we reached the tree, a big black bird was brooding. We held a council. I must have the baby while it was a tiny baby and the blue egg if possible. A camera was set up and focussed on the mouth of the log. The Deacon plunged into the swamp and started back beside the trunk, tapping it gently to drive out the bird. She was to be snapped as she emerged.

The light was bad, but the experiment was worth a plate. We did not dare risk frightening the bird by doing any clearing while she

was brooding. These matters must be handled delicately and with common sense. To cut down a tree with her watching us, in all probability meant to frighten her into creeping to the farthestmost recesses of the log, where she might refuse to come out for hours. Then for the Deacon to enter to bring out the baby while she was there would mean to give her a fright from which she would never recover; one that might result in her deserting the nest. She must be coaxed out, before any clearing to throw light on the opening was done. I was watching the log, my shaking fingers grasping the bulb. I had depended on her walking to the opening, then flying from there. She came out on wing, with a rush. My shutter was set too slow for flight. There was only an indistinct wave across my plate.

Then the Deacon entered the log, creeping its length, to carry out the baby and the egg in his hat, which we previously had lined with leaves. The odor was so unbearable we could work close to the log only by dipping our handkerchiefs in disinfectant, then binding them over our mouths and nostrils. The Deacon said there was not a trace of nest. The baby and the egg were in a small hollow in the decayed, yellow elm fibre.

The baby was cunning as possible, white and soft as a powder-puff. He had a little,

quaint, leathery, black old face. The unhatched egg was beautiful, but too light weight to contain a young bird ready to pip the shell. We at once named the baby "Little Chicken," after Pharaoh's Chickens of old. The Deacon placed him in the mouth of the log, exactly as he found him, while I cut away vines to make a footing. Then we cut down several trees and bushes to secure a good light on the mouth of the log. A study was made of the location, two of Little Chicken and the egg, finally one of the baby alone.

Then the Deacon crept back into the log to replace the baby and the egg, although we knew it would not hatch. The following morning the mother broke it and ate the contents.

The birds were black vultures, the pioneers of their kind in this part of the country. The female was a brilliant young bird, with fresh face and feet. The male was much larger than his mate, duller of coloring, with a wrinkled old face, while his feet and legs were encrusted with a lime-colored growth at which he bit and worked.

When we left the swamp we were so overheated that we chilled until we were compelled to wrap ourselves in the side curtains and lap-robe of the carriage, lower the top so that we sat in the sun of a hot June day, and to drive at a slow walk. The Deacon turned to

me with the first word he had uttered, save to ask what I wanted done next, and inquired: "Do you think that *paid*?"

Never in all my life had I been so uncomfortable, so unspeakably miserable. I was chilling until I shook under my leather covering, so pretended not to hear him. The following morning I produced my bunch of proofs.

"Do *you* think it paid?" I asked.

The Deacon examined the proofs several times, finally selecting the best one of Little Chicken and the egg.

"That more than pays," he said succinctly. "When are we going again?"

"I want to go every day to feed Little Chicken some liver or sweetbreads and become acquainted with his parents. I want to make a study of him every three days; as many as I can of the old ones," I answered.

"All right!" said the Deacon.

"But you can't spare all that time," I cried in astonishment.

"I must," said the Deacon. "No one less careful of you than I am ever shall take you to the Limberlost."

So for weeks, until October, in fact, we watched over that baby and courted his parents. We found in our woods a dead calf which we carried into the swamp, placing it

conveniently for the old ones and for me to take pictures of them. When Little Chicken was a few weeks old, without our knowledge lumbermen removed the log for a watering-trough, but sent me word where they had placed the baby. His parents were very indifferent about feeding him in his new location so I had to visit him daily. Once when I was called from town for several days he was brought to the Cabin, in the carriage. A woman was hired to feed him until my return, when he was taken back to the swamp. There is no way of adequately describing what we endured for that series of pictures.

The birds were friendly, the male especially, and responded beautifully to our advances. From Little Chicken just before he stood to walk, I secured a splendid study, which covers every natural history point possible to one photograph, even the tongue. The baby was obliging about posing, while in two weeks he answered to his name and took food from my hand as readily as from his mother. When he was almost full-grown with only a trace of down showing around his ears, he would follow me across the swamp with his queer rocking walk, humping his shoulders and ducking his head; looking so uncanny in that dark weird place, he made me think of witches and goblins.

The last time I saw him was late in October. He followed me to the edge of the Limberlost, so I turned and snapped a picture of him, when his wings were raised' for a sweep that carried him skyward to his parents. That season the Limberlost yielded me the only complete series of vulture studies ever made, dozens of studies of other birds, material for the book "Freckles," more natural history stuff than could be put into several big volumes, many rare specimens, and much priceless experience in swamp work, for all of which I acknowledge my indebtedness to Mr. Bolds, to Little Chicken, and to the Deacon.

The following season, having become familiar with the swamp and therefore indifferent to its annoyances and dangers, I prepared myself suitably to meet them, and went as often as I chose. I hoped this pair of vultures would return, and I am very sure they did; but finding the only favorable nesting location gone, they moved nearly a mile away, to our farm, where they were investigating a hollow log, when our farmer, not knowing what they were, mistook them for hawks, and tried to shoot them.

They speedily left. The next I heard of them a man living five miles east of us sent me word there was a pair of big birds nesting in a hollow tree in his woods, so I went to pay

them a visit. Having been unmolested, they had a fine pair of young, almost three weeks of age, when I arrived. The female was the same small, sleek bird; not so timid as she had been the previous summer. The male was the same big, old, scale-encrusted fellow; exactly as I remembered him, so that I am sure as I ever get of anything I cannot prove, that these were Freckles' Chickens of the Limberlost. I even enjoyed the hope that they knew me, the small black horse, and the load of cameras; but very probably that was a case where the "wish was father to the thought."



HOW SHALL WE USE OUR GIFT?

ALL ornithologists have agreed for a long time past that we owed much of our comfort to the birds. To-day, it is being generally conceded that if every form of bird life were swept from the face of the earth "at one fell swoop" man could not long survive. But with the exactness of nature in working out her evolution, every square yard of earth and air seems to be especially policed by these watchful feathered servitors of ours, busy in their daily work of sustaining bird life, having not the slightest knowledge of what their work, beauty, and music means to us.

Over the waters of my lake, during the fall and spring migration, I see wild geese, ducks, loons, galinules, coots, gulls, and grebes feeding in flocks. They keep the lake from becoming overcrowded with fish, and the shore from being overrun with countless larvæ and worms. Around the swampy shore line, stalk cranes, herons, bitterns, and shitepokes, keeping down the excess frog population, water-puppies, lizzards, tiny soft turtles, grubs, and worms.

Over the earth of the fields and open country go flocks of quail, cleaning up the fallen weed seeds in the fence corners, putting wasted grain to excellent use, snapping up grasshoppers and other insects here and there, helped in all this work by woodcocks, snipe, and prairie chickens, although hunters are rapidly exterminating the last. In the clover fields and meadows the larks are busy searching out wireworms and cutworms, and cleaning the breast of earth of every visible bug and worm with the assistance of bobolinks and oven birds. In gardens and dooryards, the robin is the greatest hunter of earthworms, taking uncounted thousands, also cutworms and other injurious insects comprising more than one third of his food.

At the same time these birds are busy in the open, on the floor of the woods the chewink and all members of the thrush family are scratching energetically and aiding in the preservation of the forest by cleaning boring worms and insects from the roots of the trees.

Slightly above them, in the bushes, the sparrows and finches consume untold quantities of noxious weed seed, varying their diet with countless bugs and worms, keeping to these almost entirely during the nesting season because the young birds thrive better on these than on seed.

In the higher bushes, catbirds are busy collecting worms, lice, moth, and insect eggs, and eating wild berries. Here orioles work industriously, taking moth eggs, worms, the softer bugs, and a very little fruit. The cardinal grosbeak feeds on seeds, berries, wild fruit; and when feeding young, many worms and insects. His cousin, the rose-breasted grosbeak, has the finest record of any bird in the world as an exterminator of the potato bug in its soft form, before it attains to its stiff beetle wingshields. This alone should insure him a crown in addition to the red badge on his breast. He also eats other beetles and worms, a small amount of fruit, and a few wild berries.

In the orchards, the robins are as busy as in dooryard or garden. The orchard oriole is a veritable blessing, not in disguise, for all day long he works faithfully collecting the click beetle that few other birds will take, and destroying the tent caterpillars by the thousands. The cuckoo is so active that one pair will clean the tent caterpillars from a small orchard, taking them whole when young, dressing the spines off as the caterpillars grow older, and sucking the insides of the largest, heaviest spined ones. There is a record of nine larvæ destructive to black walnut found in the crop of one cuckoo; although, if he was doing such

invaluable work, it surely was a pity to kill him. He should have had the freedom of the earth and a monument reciting his virtues instead. The dreaded canker worms are in his dietary list and also in that of the bluebird. Jays eat bugs, worms, berries, but alas! the eggs and young of more beneficial small birds such as warblers and vireos.

Up and down the tree trunks all day the industrious nuthatches and brown creepers, assisted by the woodpeckers of several families, search for eggs, lice, larvæ, borers, and cocoons.

In hollow trees live chickadees, titmice, and crested fly-catchers, among small birds, all busy eliminating insect pests. The flicker takes beetles on trees, many ants and grasshoppers on earth.

The martins and swallows have the air for their province. On tireless wings, with open mouths, they sieve the air, taking millions of tiny gnats, mosquitoes, and flies, that would make life altogether unbearable for us were we compelled to live and breathe among them in their unchecked development. Smaller in size but tireless on wing and taking larger prey, I should class with the air police the gnat-catchers and fly-catchers.

Invaluable around any premises I count the work of the common house wren, which will

raise three broods, averaging from six to eight young to the nest. This keeps wrens food-hunting from dawn until dark, taking every insect they see from a mosquito to a spider. The largest insect I ever pictured a wren carrying into his house was a dragonfly stripped of its wings.

It is one of the mysterious, inscrutable workings of evolution that our real safety depends upon the warbler family, its members so tiny that they are not much bigger than wrens, most of the protective color of green and gold like the leaves of the trees, of steel and slate gray and white like the bark of tree trunks, painted, splashed, and mottled colors like the flowers, blue like the sky, or dark blue like the shadowed waters, the gayest, gaudiest little feathered throng on earth, the almost invisible host that hunts among the leaves. They have featherlight bodies, indistinguishable among the leaves, bright eyes, tiny, pointed beaks, with which they search under and over the foliage of vines, bushes, orchards, and giant forest trees, hunting out millions and billions of insect eggs, larvæ, aphis, plant lice, and tiny, newly hatched caterpillars that, if allowed to mature, would develop six inches in length. The warbler young must have insect diet. Their crops are large for the size of the birds, and the old birds keep them packed

all day long. A young warbler can eat over half its own weight in insects each day and handle them conveniently.

One ornithologist kept record while a palm warbler collected from forty to sixty insects a minute to carry to its young. He estimated that the bird he was watching from his veranda took more than nine thousand insects in four hours. Of course these insects were very small, but so are the wheat midge and Hessian fly; yet they do millions of dollars' worth of damage to the wheat crops of one season. Scientists who have made an especial study of the work of warblers while insect collecting have kept record as a yellow-throat took eighty-four birch aphids to the minute. A chestnut-sided warbler made a record of twenty-two gypsy caterpillars to the minute, and the more agile Nashville warbler almost doubled this record by taking forty-two. Another chestnut-sided warbler took twenty-eight caterpillars in twelve minutes, and a black-and-white gathered up his twenty-eight in ten minutes. A Maryland yellow-throat collected fifty-two caterpillars in a short time. All warblers eat tent caterpillars, apple tree tent, brown tail, and gypsy caterpillars, all pests of the worst description on fruit trees and other vegetation.

The tiny host comes winging to us exactly

at the right time to clean up the young caterpillars as they emerge from the eggs of moths and butterflies. How many they take in a season, there is no way to estimate. They also eat bark lice, scale insects, bark and boring beetles. They help the orchard orioles with the click beetles, while they are fond of weevils, ants, cadis flies, May flies, spiders, and snails.

There can be no question concerning the value of the work of warblers in tree and vegetable conservation. While working with dozens of the big night moths of June, securing data for a book, "Moths of the Limberlost," I have had the females of some of the commonest species, *Cecropia* and *Polyphemus*, lay by actual count from three to seven hundred eggs each, while *Luna* and *Regalis* would average from three to five hundred. Placed in freedom, these eggs would have covered the undersides of leaves of orchard and ornamental trees and of hickory and walnut, among the most valuable forest trees, with millions of caterpillars, which, unchecked by the birds, at maturity would be worms measuring from four to six inches in length, each consuming his weight in leaves in a day. Were it not for the work of warblers, in spite of any form of burning or spraying, so many of these eggs would escape on the undersides of leaves that

in a few years' time our orchard, field, and forest trees would be denuded of leaves by midsummer. Then the hot sun shining on the bare branches would bake them to such a bark-bound state that in two seasons the strongest of them would be dead. I have seen many single trees killed in this manner in northern Indiana and southern Michigan; and in several places I have seen whole orchards wiped out in two seasons.

There is a great deal more that I might say, but I hope I have gone into sufficient detail to prove to any one reading this book the sum of our indebtedness to the birds. The question now becomes: how can we pay our obligation? How can we so protect and increase the birds as to raise their numbers again to such flocks as I knew in childhood, when the insect pests, which we fight each year through an expenditure of millions and much valuable time, were unknown, the work of the birds being sufficient to insure magnificent crops of large and small fruits regularly every season?

It appeals to me that the biggest stroke which could be accomplished in their favor at one blow would be to decree and sternly carry out the complete extermination of the English sparrow. It is absurd sentiment, based on ignorance of the habits and charac-

teristics of this little villain, which allows it to go unmolested anywhere. A flock of English sparrows in a location where warblers and finches are homing means worse destruction to the birds than a plague of influenza, typhoid, and small-pox combined would mean to human beings, since a healthy human being rightly cared for has a chance of escaping the ravages of disease. Other and smaller birds have no chance whatever to escape the sparrow, which is a pugnacious little bulldog in a fight. It unhesitatingly attacks birds from the size of a robin down, breaking eggs, tearing up nests, throwing young birds from nests, eating them if they are small enough. In my personal experience, I have seen English sparrows throw the young from the nest of a robin, built where the logs cross under the roof of a veranda, the fall killing them on the floor below. I have seen them enter high bird boxes and drag out young martins and bluebirds, throwing them to their death if the young were too big to carry to their own nests for food. I have seen them enter robin nests, break the egg shells, eat all they could hold, and when they could hold no more, break the remainder of the eggs for pure mischief. Aside from their incalculable destruction of other small birds in a season, it may be recorded that English sparrows are birds of dis-

gusting habits. They do not care to exercise themselves enough to take food in a legitimate manner, preferring to feed from garbage cans, to eat the food provided for the chickens, and to steal from seed bins and granaries. They have no song; they are the lousiest birds with which I ever came in contact; they are polygamists, four or five females building a communal nest from the size of a peck measure to a bushel. They breed from February through to November, resting but two months in the year. Mr. Barrows, in his report for the Government of the United States, estimates the increase of one pair to be *two hundred and seventy-five billion, seven hundred and sixteen million, nine hundred and eight-three thousand, six hundred and eight-nine* in ten years. In the face of such a record I am surely speaking advisedly when I say that to-day they constitute the one greatest menace to our best form of timber and vegetable conservation, which is stringent bird protection. I sincerely hope that every State in the Union will make it a misdemeanor for any person to be found harboring English sparrows on their premises. Of all the foolish sentiment that was ever fostered to the detriment of our welfare in this country, the sentiment which protects "the dear little English sparrow" is the most foolish. I should exactly as soon

protect "a dear little" copperhead or coral snake.

After sparrows, I should count the cowbird as the next worst menace to other bird life, and I unhesitatingly urge the complete extermination of every flock of cowbirds in existence. Here, again, it is sentiment of the most foolish and disastrous kind which will protect a bird of no value in any way on earth, a songless bird of disgusting habits, with absolutely nothing to its credit except the extermination of a few grasshoppers, to which the lark and bobolinks could effectively attend in its absence. When I recall that in my own experience in photographically reproducing the life history of one of these birds I offered incontrovertible proof that she killed three masked warblers, two red-eyed vireos, and one blue finch, I feel amply justified in demanding her execution, as well as that of her tribe, spending their lives in similar disastrous work. If I have any influence whatever, I shall most earnestly use it in advocating the complete extermination of cowbirds and English sparrows. As a matter of justice to exquisite little creatures, upon whom all of us are dependent, and as a matter of self-preservation, I urge that this matter be gone into strenuously and immediately.

The next most serious menace to our insec-

tiverous birds I should say is the depredations of other birds, such as crows, hawks, jays, and owls. Here we are helpless; nature must preserve her own balance. We can not interfere to any great extent. These creatures evolved together, and if left to themselves, they will keep the equation. I do make it a rule, which I advise everyone to follow wherever it is possible: give the insectiverous songbird the benefit of the doubt, protect it wherever and however possible; at the same time, my strongest displeasure is waiting for the head of any one who touches my great horned owls, my chicken hawks—I can not even allow the killing of the jays.

Because I love the birds more, it necessarily follows that I love cats less. From my point of view, I prefer to dispense with the work of a cat and solve the mouse problem with a trap rather than to have cats around; since they would spend much of the day and all of the night feeding upon beneficial birds, the song and beauty of which I adore.

I should strongly recommend a fair-sized, pliant switch for the back of the small boy or girl who deliberately destroys a bird's nest after having been carefully taught the reason for the protection of all beneficial birds. When it comes to the gunner who takes deliberate aim at an exquisite songbird, merely

to test his skill, I consider him one of the most selfish, ignorant, and disgusting creatures that come within my knowledge.

And I have a complaint against scientific ornithological workers that I feel it is only fair and just to the birds that I should bring forward. I realize that Audubon did a great work when he classified the birds of a continent and brought from the forests specimens of practically every bird of the United States; but at the same time, it seems to me that his records are unnecessarily bloody, that he might have accomplished equal results and killed far fewer birds. When we come to the records of scientists making up reports for the Government or for any cause whatever, I think the butchery in which they indulge is absolutely inexcusable. I can see a reason for killing ten rose-breasted grosbeaks to find if each of them has potato bugs in its crop; I can see positively no excuse for killing fifty-two for the same reason; and when the record runs from fifty-two to one hundred and fifty-two among our rarest and most beautiful birds of song on the excuse that the contents of their crops must be examined or their skins mounted for collections, I protest vigorously. Here, too, the law, which is so watchful over matters of infinitely less importance to our welfare, should take a hand and specify that here-

after only the very smallest number consistent with proving a point essential to our welfare should be killed.

These things the Government should immediately take in hand, in the matter of at least partial payment of our debt to the birds. To go further than that, each man, woman, or child who loves music, beauty, and grace, who loves fruit and flowers, gardens and forests, may do some small share consistent with his means and location. It is always possible to give a high degree of protection to the birds that seek your good graces when they locate their nests on your premises. Shield them from cats, squirrels, other birds, and wilful children to the best of your ability. Put up all the boxes, old gourds, cans, dippers, any protective nesting shelter you can furnish for them. A prothonotary warbler, a thing of gold and bubbling song, passed close by a ten-dollar bird box when it nested in my bait can on our dock last summer. The birds do not in the least object to tin cans and the crudest boxes or hollow limbs placed for their use. If you have a small waste place, where a handful of hemp seed can be sowed in spring and seed raised to add to suet and meat bones for the birds of winter, that will be a great help, since the seed is very rich in oil and a warming food for birds.

Neltje Blanchan once especially requested me to urge that every bird lover plant a few low-growing, thickly leaved evergreens for winter sleeping quarters for the birds, among the larger trees, junipers and red cedars, among the smaller, the cypresses and arbor vitae, these to be put in the places deemed most sheltered and convenient for winter quarters. To this, I add the plea that in every convenient corner you set a Russian mulberry as old as possible to begin with, and in a short time your complaints against the birds for taking your cherries and strawberries will be so reduced as to be negligible.

A recently published estimate of the average lifetime of birds allots to a wren three years, a thrush ten, a robin twelve, a lark thirteen, a blackbird twelve, a goldfinch fifteen, a canary fifteen, a pigeon twenty, a crane twenty-four, a sparrow hawk forty, a crow fifty, a heron fifty-nine. This gives to the birds in which we are most interested a very short span of life. It is in our power to make this life longer and safer for those of our birds, upon which we are most dependent, those to which we owe the things of life we prize most highly. While all of us are in softened mood and of a will to rectify many of the existing evils which we have endured for years, this question comes up among many

other questions of not nearly so much spiritual and economic importance. In the writing of this book I have done my best. Now is the time for concerted action on the part of everyone who reads it. Shall we pay our debt to the birds?



THE WOMAN WHO HAS TOUCHED FIFTY MILLION LIVES

ABOUT twenty years ago, Mrs. Gene Stratton-Porter sent the editor of *Century* a short story. The story became her first book, "The Song of the Cardinal." Then followed "Freckles," "At the Foot of the Rainbow," "A Girl of the Limberlost," "The Harvester," and others, not in quick succession, for Mrs. Porter had promised herself that for each novel she would write one book of pure natural history. Her latest novel, "The White Flag," published in the fall of 1923, had sold more than 210,000 copies three months after publication.

In the seventeen years, Mrs. Porter's books have been published in English by Doubleday, Page and Company, her sales have reached nearly 10,000,000 copies, that is, more than 1,645 copies every day of the year for seventeen years, which means that within this time probably more than 50,000,000 people have read them. Beside their large circulation in the United States and throughout the English speaking world, they have been translated into seven foreign tongues. They have had great success wherever they have traveled. Her unusual achievement is not founded on the mere gift of story telling. Mrs. Porter has won an immense personal audience because of her special power of visualizing nature and the educational value of her work.

The late Enos A. Mills, famous naturalist,

GENE STRATTON-PORTER

declared that he had learned from his large audiences, while traveling from one great city to another lecturing, that Mrs. Porter's books have taken more people afield and made eager and lasting students of nature of them than the writings of all other scientists and naturalists.

As a life long student of nature having the unusual qualifications of scientific accuracy gained by study and observation afield, her successes, both in fiction and nature are founded on a rock that will endure. Her books have circled the globe on the basis of solid merit and are read with great appreciation in France, Germany, Norway, Sweden, Spain, Finland, and the Arabian countries.

The following are a few of the many unique things that have happened to Mrs. Porter's books during the fourteen years of their circulation:

"The Song of the Cardinal" has been printed in ten different home editions, several British and translated into French, Spanish, Scandinavian, and Finnish. It has been adopted by the State Reading Societies of many states and used for stage reading by such renowned performers as Edward Whitney and Leba Peshova. There stands to its credit such a high grade of literary criticisms from the best sources that it is fairly entitled to a place among American Classics. This is frankly a nature book.

"Freckles," a nature novel, has been issued in six different American editions and five

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British, ranging from shilling copies to dainty little volumes bound in vellum or beautifully colored leather. It has been issued as a handsome gift book in Scandinavia, where it was translated by Hugo Hultenberg of Upsala, for A. J. Lindblads, and by Ernst Lindquist for Fahlcrantz of Stockholm. It has also been translated into Finnish and Spanish and made into a book of Braille point for the blind, by the National Lending Society of England. It has been staged and made into a beautiful photoplay. It has been adopted by many State Reading Societies, it is a prime favorite in prisons and reform schools. It has been read by millions of English speaking people, but the record of its foreign readers has not yet been compiled.

"Friends in Feathers," a revised and greatly enlarged edition of "What I Have Done With Birds," received the highest scientific and literary commendation.

There are four American editions of "At the Foot of the Rainbow" and several British. No book written by Mrs. Porter ever had finer literary criticism than this one.

"A Girl of the Limberlost" has been issued in four different home editions and several British. It is on the State Reading Society lists of many states and has been read by probably two million people. In a test vote of the West it proved to be by a large majority the best loved book of the girls of the country. It has had the unique distinction of having been selected for translation into Arabic for

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use in the Women's College of Cairo, on account of its exposition of natural history.

On "Music of the Wild" there have been issued three different American editions, two British, and two Scandinavian, beautifully illustrated. "Birds of the Bible" has three American editions to its credit and one British. "The Harvester" has four different American editions, two British, one Scandinavian, and one German. Just as "A Girl of the Limberlost" interested its thousands in moths, so "The Harvester" set hundreds of men and women to investigating the growth of drug herbs for market and has been the means of establishing many fine farms.

There are two American and two British editions of "Moths of the Limberlost" and three American (two British, and one Scandinavian) of "Laddie." This book is generally conceded to have given the most faithful picture ever put into print, of the best American farm life, and is one of the best loved of Mrs. Porter's books. It is being especially appreciated in Great Britain.

"Michael O'Halloran" has had three American editions, two British, one Scandinavian, and one Spanish edition to its credit.

Within the past year, a photoplay was made of this book from a scenario written by Mrs. Porter herself. She not only wrote the scenario, but she organized a moving picture company for the purpose of making picturizations of her books and all of the activities of this organization down to the last detail are

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under Mrs. Porter's personal supervision. The picture has been tremendously successful and has drawn large audiences in the best motion picture theatres in the country.

"Morning Face," a book for children, was issued at the same time in New York and London. It has become a much loved child classic.

Her other books of fiction, "A Daughter of the Land," and "Her Father's Daughter" have been received with the accumulated enthusiasm inspired by the work of earlier years. "The White Flag" has the distinction of being the subject of the largest single order ever placed on a book of fiction. One bookseller bought 100,000 copies of this title before it was published.

Among her best loved works is "The Fire Bird," a long narrative poem of sustained beauty and strength, typically American, not only because it exhibits the sturdy qualities which mark all of her work, but also because it is the tale of the first Americans, the Indians. She has woven into its rhythm, the cadences of the wind, the rivers, and the deep woods. Such music a naturalist understands but only a poet may transcribe. Charles Wharton Stork said: "A comparison with 'Hiawatha' is inevitable, but in our opinion, 'The Fire Bird' is the gainer, in that it is more unified and compelling as a narrative and closer to one's imagination of actual Indians in style."

Another beautiful work which has been

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brought out by the publishers in an especially handsomely decorated edition is "Jesus of the Emerald," a Christmas legend.

THE WORKS OF GENE STRATTON-PORTER

A DAUGHTER OF THE LAND

THE FIRE BIRD

FRECKLES

FRIENDS IN FEATHERS

A GIRL OF THE LIMBERLOST

THE HARVESTER

HER FATHER'S DAUGHTER

HOMING WITH THE BIRDS

ED. LADDIE

MICHAEL O'HALLORAN

MOTHS OF THE LIMBERLOST

MORNING FACE

MUSIC OF THE WILD

THE SONG OF THE CARDINAL

THE WHITE FLAG

JESUS OF THE EMERALD



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